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Beyond Adam's Rib: How Darwinian Evolutionary Theory Redefined Gender and Influenced American Feminist Thought, 1870-1920

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Beyond Adam's Rib: How Darwinian Evolutionary Theory Redefined Gender and Influenced American Feminist Thought, 1870-1920

by

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To my parents, Ray and Kay Hamlin

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Beyond Adam's Rib: How Darwinian Evolutionary Theory Redefined Gender and Influenced American Feminist Thought, 1870-1920

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This dissertation reveals that the American reception of evolution often hinged on the theory's implications for gender and that Darwinian ideas significantly shaped feminist thought in the U.S. While the impact of evolution on American culture has been widely studied, few scholars have done so using gender as a category of analysis. Similarly, evolutionary theory is largely absent from histories of American feminist thought. Yet, Darwin's ideas, specifically those in *The Descent of Man, and Selection in Relation to Sex* (1871), had profound ramifications for gender and sex. Nineteenth-century scientists and laypeople alike eagerly applied Darwin's theories to the "woman question," generally to the detriment of women. At the same time, key female activists

embraced evolution as an appealing alternative to biblical gender strictures (namely the story of Adam and Eve) and enthusiastically incorporated it into their speeches and writings. My work describes how women including Antoinette Brown Blackwell, Elizabeth Cady Stanton, and Charlotte Perkins Gilman utilized Darwinian principles to challenge traditional justifications for female subordination and bolster their arguments for women's rights. Furthermore, my research demonstrates that gender roles, particularly those pertaining to courtship, marriage, and reproduction, were reformulated in accordance with Darwin's theory of sexual selection, altering popular ideas about motherhood and paving the way for eugenics and birth control.

My interdisciplinary project draws on scientific and mainstream publications, the feminist press, prescriptive literature, fiction, popular culture, and archival materials, and it explores both intellectual developments and their impact on people's daily lives. I argue that evolution shifted the terms of debate from women's souls to women's bodies, encouraged feminists to claim "equivalence" rather than "equality," inspired opponents and proponents of women's rights to ground their arguments in science (most frequently biology and zoology), destigmatized sex as a topic of scientific inquiry, and galvanized support for greater female autonomy in reproductive decisions. Looking at gender, religion, and evolutionary theory in concert not only helps us more fully comprehend the construction of gender and the development of American feminism, especially its troubled relationships with religion and science, it also enriches our understanding of the American reception of Darwin.

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Introduction

During the 2003-2004 academic year, I designed and taught a course called "The Rhetoric of Feminism." The readings for this class included a sampling of feminist and anti-feminists texts from 1694 to the present. In putting together the course reader, I was struck by how often both proponents and opponents of women's rights mentioned Eve. Of course, European and American women agitating for increased educational, personal, and professional opportunities encountered many obstacles, but it seemed as if the one barrier that generation after generation had to overcome was the legacy of Eve in the Garden of Eden. Pioneering feminists, from Mary Astell to Judith Sargent Murray to Sarah Grimké, all reinterpreted or dismissed the Eve myth in their writings.[1] Their opponents just as frequently invoked Eve as indisputable evidence that women should not be educated, trusted, or heard from in public.

As the U.S. women's rights movement gained ground in the nineteenth century, so, too, did the opposition, and, again, Eve came to the fore. In 1869, an article in *The Revolution*, the radical women's rights newspaper founded by Elizabeth Cady Stanton and Susan B. Anthony, reported on a recent debate about the lessons to be learned from the Garden of Eden. Summarizing the leading thought of the day, the unnamed male speaker explained that men were obviously superior to women because "1. Her creation

[1] See, for example, Mary Astell, *A Serious Proposal to the Ladies*, ed. and with an introduction by Patricia Springborg (London: K.Wilkin, 1694, reprint Orchard Park: Broadview Literary Texts, 2002); Judith Sargent Murray, "On the Equality of the Sexes" (1790) reprinted in *Selected Writings of Judith Sargent Murray*, ed. Sharon M. Harris (New York: Oxford University Press, 1995): 3-14; and Sarah Grimké, "Letters on the Equality of the Sexes, and the Condition of Woman" (1837-1838), reprinted in *Roots of American Feminist Thought*, ed. James L. Cooper and Sheila M. Cooper (Boston: Allyn and Bacon, 1973): 65-89.

was subsequent to that of man. 2. The first woman was taken from the side of man. 3. Her creation was avowedly to supply man with a companion. 4. She was of the sex which implies maternity."[2] According to this logic, women were inferior to men as a result of divine design and the lessons conveyed in Genesis.

In her landmark book *Woman, Church, and State* (1893), Matilda Joslyn Gage trenchantly commented on the importance of Eve to opponents of women's rights and on women's sustained efforts to rehabilitate their biblical mother. She charged:

> In nothing has the ignorance and weakness of the church been more fully shown than in its controversies in regard to the creation. From the time of the 'Fathers' to the present hour, despite its assertions and dogmas, the church has ever been engaged in discussions upon the Garden of Eden, the serpent, woman, man, and God as connected in one inseparable relation. Amid all the evils attributed to woman, her loss of paradise, introduction of sin into the world and the consequent degradation of mankind, yet Eve, and through her, all women have found occasional defenders.[3]

Gage's comments established both the centrality of Eve to cultural understandings of gender and women's limited responses to arguments based on what had transpired in the Garden of Eden. As I read more and more feminist and anti-feminist treatises that hinged on the authors' interpretations of Eve, I began to wonder what happened when evolution challenged the biblical account of creation and biblical literalism in general. Did women realize that evolution refuted the existence of Eve? If so, did they embrace the theory? And, more broadly, did evolutionary science influence debates about gender and sex that

[2] P. [Parker] P. [Pillsbury], "Woman in Genesis," *The Revolution*, 25 November 1869, 330.

[3] Matilda Joslyn Gage, *Woman, Church, and State: The Original Exposé of Male Collaboration Against the Female Sex* (Chicago: C.H. Kerr, 1893, reprint Watertown: Persephone Press, 1980), 235 (page citations are to the reprint).

the Bible had previously mediated? If so, how? These are a few of the questions this dissertation attempts to answer.

Charles Darwin's *On the Origin of Species By Means of Natural Selection* (1859) disputed the Genesis account of creation, but it did not specifically apply evolution to humans. His next book, *The Descent of Man, and Selection in Relation to Sex* (1871), did. This work not only incorporated humans into the evolutionary saga, it also advanced radical concepts about the origin and significance of gender difference through the theory of sexual selection. Darwin contended that sexual selection explained the development of secondary sex characteristics, the divergence of races, and the origins of heterosexuality and monogamy. He also claimed that it was at least as important an evolutionary mechanism as natural selection. *The Descent of Man* provoked much discussion and prompted many Americans to reconsider their previously held ideas about gender and sex. In this heady time, scientists and laypeople relied on evolutionary discourse to advance many innovative ideas about the differences between men and women, ideas that often contradicted each other. Much like the Bible, evolution provided as many questions as answers when it came to understanding gender difference. As such, it did little to settle the "woman question," but it did permanently alter the terms of debate.

The publication of *The Descent of Man* also stimulated a reconsideration of the human body and sexuality. By positing that humans were more closely related to apes than angels, Darwin encouraged men and women to look to the animal and plant kingdoms to better understand their bodies and the reproductive process. Furthermore,

Darwin suggested that reproduction, not the struggle for survival, drove the evolutionary process and was the most significant human activity. Indeed, this work was more or less about sex – who lived long enough to have it, who had it with whom and why, and who passed on traits to the next generation. The winners in Darwin's universe were not those individuals who were the most pious, the most educated, or the greatest statesmen, but those who left the largest number of healthy offspring. As a result, the widespread discussions of sexual selection spurred new thinking about sex, courtship, and marriage. Many Americans attempted to adapt their bodies and reproductive practices to the new Darwinian ethos as evidenced in numerous courtship advice books, patent records, and popular trends.

Furthermore, Darwin popularized the radical potential of the scientific method and encouraged others to turn to it in order to settle disputes about gender. Reflecting on the Darwinian revolution in 1901, Darwin's colleague George Romanes observed that perhaps the great naturalist's most significant contributions had been his innovative methods:

> Among the many and unprecedented changes that have been wrought by Mr. Darwin's work on the *Origin of Species*, there is one which, although second in importance to no other, has not received the attention which it deserves. I allude to the profound modification which that work has produced on the ideas of naturalists with regard to method.[4]

Specifically, Romanes praised Darwin's ability to deduce new theories from his evidence and observations, whereas his peers merely assembled taxonomies. Rather than amassing specimens to fill out the animal tree, Darwin used his research to construct his theory of

[4] George Romanes, *Darwin and After Darwin*, vol. 1 (Chicago: The Open Court, 1901), 1.

evolution by natural selection. Darwin was hardly the first person to question the Genesis account of creation, but his work established the potential and credibility of scientific research to the masses in a way that German higher criticism and geology had failed to do. Thus, Darwin's influence was not limited to what he said about the origins of life on earth; it also included his methods. And he had a gift for establishing controversial theories by presenting painstakingly detailed and overwhelming evidence from the animal, plant, and geological records. Through his example, many women learned to distrust dogma, tradition, and orthodoxy. They also learned that one could make controversial claims as long as they were amply documented with scientific evidence and observation. In the late nineteenth century, as debates about women's rights increasingly depended on scientific evidence, women frequently used this to their advantage by countering science with better science and entering the evidence of their own experiences.

Between 1870 and 1920, evolution challenged the authority of Genesis and the peculiar stamp Adam and Eve placed on gender roles, providing an opening for broad rethinkings of what it meant to be male and female. By the early twentieth century, evolutionary science had largely displaced religion as the most powerful arbiter of gender, though this transition was not linear, uniform, or complete. Yet, virtually no scholarship explores the American reception of evolution using gender as a category of analysis. Similarly, Darwinism and feminism were concurrent intellectual developments and significant milestones in the shift from the Victorian to the modern era; however, few scholars have asked how these two schools of thought developed in relation to each other.

This dissertation argues that Darwinian evolution profoundly reshaped the ways in which Americans thought about gender, the body, and sex and that to fully understand its reception, we must study it through the lens of gender.

Those historians who have considered the gendered ramifications of evolution have tended to focus on its conservative applications and the ways in which it was used to provide evidence for women's "natural" inferiority. However, focusing on the ways in which evolutionary theory bolstered anti-feminism obscures two interesting questions: 1) how did evolutionary theory change the ways in which women viewed themselves and their relationship to the world, and 2) how did evolutionary theory alter conversations about gender and sex more generally? This dissertation argues that Darwin's theory of evolution contained the seeds of radical interpretations as well as conventional ones. For one thing, Darwin challenged the longstanding and pervasive belief that all heterosexual relationships and gender roles could be discerned from the Garden of Eden. Secondly, as the late Lawrence Birken pointed out, "the Darwinian vision proved to be disturbingly subversive" of the enlightenment sexual order, what many historians refer to as "separate spheres."[5] Darwin posited that all life had evolved from a single, hermaphroditic organism, that humans were close kin to animals (many of whom enjoyed sex and gender practices widely different from those of humans), and that male and female bodies contained evidence of their hermaphroditic past in atavistic traits, such as male nipples and the female clitoris. Such ideas enabled people, especially those already inclined to

[5] Lawrence Birken, "Darwin and Gender" *Social Concept* 4 (December 1987), 77. Birken further elaborates on these ideas in *Consuming Desire: Sexual Science and the Emergence of a Culture of Abundance, 1871-1914* (Ithaca: Cornell University Press, 1988).

challenge the existing order, to question whether or not patriarchy, monogamy, and heterosexuality were in fact natural. Many feminists and other social radicals were keen to these revolutionary insights and embraced evolutionary science as an ally. In 1913, bohemian journalist Floyd Dell declared, "[t]he woman's movement is a product of the evolutionary science of the nineteenth century. Women's rebellions there have been before. . .But it is modern science which, by giving us a new view of the body, its functions, its needs, its claims upon the world, has laid the basis for a successful feminist movement."[6] For modern readers to understand the gendered significance of Darwinian evolution, imagine what it would be like if scientists discovered life on another planet that was either gendered differently from us or not gendered at all.

Throughout this dissertation, I triangulate gender, evolutionary theory, and religion in order to analyze the complex ways in which evolutionary science challenged, and frequently replaced, the Bible as the authoritative source on gender. I argue that the broad-based acceptance of evolution facilitated a shift from biblical gender paradigms to scientific ones and that Darwinism and feminism developed in concert. My work describes how female intellectuals, including Antoinette Brown Blackwell, Elizabeth Cady Stanton, and Charlotte Perkins Gilman, used Darwinian principles and language to challenge traditional justifications for female subordination and bolster their arguments for women's rights; it reveals how gender roles, particularly those pertaining to courtship, marriage, and sex, were reformulated post-Darwin; and it tracks the scientific studies of

[6] Floyd Dell, *Women as World Builders: Studies in Modern Feminism* (Chicago: Forbes and Company, 1913), 44.

reproduction that followed Darwin's landmark publications, changed popular ideas about motherhood, and paved the way for eugenics and birth control.

My dissertation is interdisciplinary and touches on many fields, including: American Studies, women's and gender studies, the history of science, intellectual history, and religious studies. It contributes to existing scholarship by more fully incorporating evolution into the history of feminist thought and by analyzing the ways in which the turn from biblical to biological gender roles both inspired and constrained feminist thought. In addition, it adds to the study of Darwin in America by incorporating a gendered perspective. "Beyond Adam's Rib" also provides a historical perspective on many of the questions that continue to animate scientific research today, such as the biology of gender, the differences between male and female brains, and the evolutionary basis of courtship. Ultimately, I hope it will further our understanding of the construction of gender, the development of American feminist thought, the history of sexuality, and the reception of Darwin in America.

Research Methods

My interdisciplinary research methods are shaped by Joan Scott's challenge to use gender as a "category of analysis."[7] Through my research, I have examined how women interpreted and utilized Darwin's theories; how scientists and laypeople applied evolutionary ideas to gender, sex, and "the woman question;" and how these ideological shifts manifested themselves in behavioral changes. I ask how perceptions of gender

[7] Joan W. Scott, "Gender: A Useful Category of Historical Analysis," *The American Historical Review* 91 (December 1986): 1053-1074.

shaped, and were in turn shaped by, debates about evolution, and how gender has informed the reception of evolution in America.

In terms of sources, my project draws on scientific and mainstream publications, the feminist press, prescriptive literature, fiction, popular culture, organizational records, and personal manuscripts, and it explores both intellectual developments and their ramifications in people's daily lives. I have conducted archival research at the Schlesinger Library on the History of Women in America, The Center for Medical History of the Countway Library of Medicine at Harvard Medical School, the Boston Athenaeum, the Sophia Smith Collection at Smith College, and the Sallie Bingham Center for Women's History and Culture at Duke University. I have explored several collections of personal manuscripts (including those of Antoinette Brown Blackwell, Helen Hamilton Gardener, and Charlotte Perkins Gilman); read entire runs of many women's rights publications, including the *Woman's Tribune*, the *Forerunner*, and the *Woman's Journal*; tracked debates about evolution and gender in scientific and medical publications; studied how women discussed science in organizations such as the Association for the Advancement of Women and the American Association for the Advancement of Science; and traced changing ideas about courtship, marriage, and sex in prescriptive literature.

Throughout my dissertation, I also pay attention to the ways in which evolution influenced existing hierarchies and definitions of race and gender, particularly in light of turn-of-the-century fears about "race suicide." While race is not the primary focus of this dissertation, it is impossible to make sense of my sources' understandings of gender

without considering race. Racial and gender hierarchies went hand-in-hand, especially in evolutionary cosmologies. Thus, it is no coincidence that the women who were most influenced by evolutionary discourse, including Elizabeth Cady Stanton, Helen Hamilton Gardener, and Charlotte Perkins Gilman, also tended to privilege their racial identity as "white" over their gender identity as "female."[8] One of the unfortunate legacies, then, of evolutionary discourse is that it provided "scientific" justification for the racism latent in the feminist movement.

Darwinism's relationship to women and feminist thought is nuanced, complex, and mixed. My dissertation highlights these ambiguities while attempting to describe the very real connections between Darwin, new thinking about gender and sex, and feminist thought. Overall, I believe women and evolutionary theory had a dialectical relationship – each shaped and reshaped the other and neither was the same after coming into contact with the other. One model for this study is Mari Jo Buhle's work on Freudian psychoanalysis and feminism. In *Feminism and Its Discontents: A Century of Struggle*

[8] I have been looking in vain for African American female responses to evolution but have yet to find any. Eric Anderson claims that, for the most part, black male intellectuals did not respond to Darwin because they had more pressing problems to attend to and because they did not see anything inherently racist in evolutionary theory (for example, Darwin refuted the theory of polygenesis and insisted that all the races sprung from the same origin). See, Eric D. Anderson "Black Responses to Darwinism, 1859-1915" in *Disseminating Darwinism: The Role of Race, Place, Religion, and Gender*, ed. Ronald L. Numbers and John Stenhouse (Cambridge: Cambridge University Press, 1999): 247-266. Anderson's analysis may also shed light on the scarcity of black female responses. Another possible explanation is that black women tended to be more closely tied to their churches, their religious faith, and the Bible than either their black male or white female counterparts, thereby making them even less likely to embrace evolutionary discourse. For an excellent analysis of the role of the church in shaping turn-of-the-century black women's activism, see, Evelyn Brooks Higginbotham, *Righteous Discontent: The Women's Movement in the Black Baptist Church, 1880-1920* (Cambridge: Harvard University Press, 1993), especially chapter 5 "Feminist Theology, 1880-1900." Higginbotham argues that black women "increasingly challenged" gender inequality in the final decades of the nineteenth century and that they turned to the Bible for inspiration and "developed a theology inclusive of equal gender participation" (121). She sees these African American female theologians as part of the "golden age of liberal theology" that flourished in the final decades of the nineteenth century as a result of Darwinism's challenge to biblical literalism (137).

with Psychoanalysis (1998), Buhle describes the complicated -- sometimes adversarial, sometimes symbiotic -- relationship between psychoanalysis and feminism and effectively argues that neither would exist as they do today without the other.[9] I believe a similar argument can be made about evolutionary science and feminism.

Overview of Previous Literature

Previous scholars of Darwin in America have largely focused on the reception and dissemination of *On the Origin of Species* and religious debates about evolution; many have examined the popularity of Social Darwinism in America; a few have studied the impact of Darwin on literature and art; still others have looked at Darwin and his legacy from the perspectives of race, class, biology, sociology, and psychology. Hardly any have seriously grappled with the gendered ramifications of evolution. Furthermore, in focusing on natural selection and Social Darwinism most studies have overlooked the popular and scientific impact of sexual selection as well as the American reception of *The Descent of Man*.

As important, scholars of gender, historians of science, and historians of American religion have rarely explored gender, science, and religion in tandem. Yet, the America reception of Darwin occurred at the nexus of science and religion and had major implications for popular understanding of gender, the development of American feminist thought, and the science of sexuality. Those few scholars who have written about the gendered implications of Darwinian evolution tend to focus on science in a vacuum—

[9] Mari Jo Buhle, *Feminism and Its Discontents: A Century of Struggle with Psychoanalysis* (Cambridge: Harvard University Press, 1998).

without considering the religious milieu in which it was received – and thereby overestimate its negative ramifications for women. Similarly, while historians have written about how science and medicine were used to control women in the nineteenth century, few scholars have asked how women used science, in particular evolution, to argue for expanded opportunities and to critique gender roles based on what supposedly happened in the Garden of Eden. This dissertation attempts to fill these voids and suggest a new framework for understanding the question of Darwin and gender.[10]

A Few Words About Terminology

One of the challenges of studying Darwinian evolution in America is that its influence was so pervasive. Open any late nineteenth-century periodical, and one is likely to find an article or at least a mention of Darwin, evolution, natural selection, sexual selection, or some combination thereof. Many people who wrote about Darwin were intimately familiar with his ideas and knew precisely of what they spoke; others responded to the cultural conversations inspired by Darwin, perhaps without reading his work. Still others, and this is perhaps the largest category, referred to all sorts of evolutionary ideas as "Darwinism" whether or not Darwin, or Herbert Spencer, or one of the many other well-known evolutionists was responsible for them. For the purposes of this dissertation, I am interested in scientific and popular iterations of Darwinism, broadly speaking. This is a study of how men and women living in the late nineteenth and early twentieth centuries applied to gender and sex what they thought to be Darwinian ideas,

[10] For a detailed review of existing literature and specific sources with which this dissertation is in conversation, please see the historiographical essay in the Appendix section.

whether or not they actually read his work and whether or not they should have said Spencer or Lamarck when they said "Darwin." By "Darwinian," I refer to the ideas that all species evolved from a unicellular organism by means of natural and sexual selection and that all questions of human development could be answered in terms of the animal kingdom. In my analysis of the actual science people were discussing, I am careful to clarify its relation to Darwin, but I did not preclude from my study sources who wrote about Darwin in ways that were not true to the letter of his word. Doing so would eliminate most nineteenth-century Americans.

Moreover, I have defined "science" broadly because in the nineteenth century disciplinary and institutional boundaries were more porous than they are today. Many people, both male and female, who conducted scientific experiments or engaged in scientific exploration and discussion were not university-trained experts. Under the banner of "science," then, I include both professionals and amateurs. In terms of the amateurs, my subjects range from people who published articles in *Popular Science Monthly* based on the world around them or their own personal experiences, to women who commented critically on the works of Darwin, to those who studied nature and recorded their observations.

Thirdly, nineteenth-century men and women generally used the word "sex" to refer to what today we call "gender." As a result, my sources and I frequently employ a different vocabulary. Throughout the dissertation, my use of the term "gender" connotes the cultural and social meanings attributed to being male or female, differences which my subjects refer to as "sex." When analyzing discussions of anatomical differences

between men and women – such as the brain size debates in chapter two – I refer to "sex" differences. Of course, I also use "sex" to refer to intercourse.

In addition, my employment of the term "feminist" is slightly anachronistic. Feminism didn't enter the American lexicon until the 1910s; so few of the people I study would have actually used or even heard the word. Furthermore, some women's rights activists who were around to witness the inauguration of "feminism" would not have called themselves "feminists." Charlotte Perkins Gilman, most notably, preferred to be known as a "humanist." Throughout this dissertation, I use the term "feminist" to describe those women and men, such as Elizabeth Cady Stanton and Gilman, who were interested in revolutionizing gender roles and gaining more autonomy for women in all (or most) facets of life, above and beyond winning the vote. I also employ the term to distinguish between women like Stanton and those who were involved in the women's club movement or suffrage activities but who were not interested in questioning patriarchy or institutions such as marriage and the church.

Overview of Chapters

My dissertation consists of four chapters, organized thematically and chronologically. Each chapter focuses on a different aspect of gender in which evolutionary science challenged deeply held religious beliefs, including: the origins of sex difference; the lessons to be learned from women's physiology; the characteristics desired in a mate and the proper scope of marriage; and the purpose of and duties incumbent upon motherhood. Together, these chapters track the shift from biblical to

biological thinking about gender and suggest both the challenges of and the possibilities for feminist interpretations of evolutionary theory.

Chapter one analyzes initial responses to Darwin in women's rights circles and argues that evolution fostered significant changes in feminist thought. Beginning in the 1870s, many women embraced evolution because they realized that it negated the story of Adam and Eve. A few of these female Darwinians also began using evolutionary principles to argue for female equivalence or even superiority. Additionally, this chapter also argues that, by bolstering the freethought movement and validating some of the more radical feminists' claims, evolution exacerbated divisions between women who were primarily interested in suffrage and those who were interested in fundamental changes in gender roles.

Next, I analyze key scientific debates about gender prompted by Darwin's arguments regarding secondary sex characteristics in *The Descent of Man*. While Darwin and other evolutionists loosened the grip of biblical gender paradigms, their theories imposed scientific gender norms that differed from religious ones but were, in many ways, no better for women. Using the protocols that male scientists had pioneered, however, women began dismantling many of the nineteenth century's most damaging theories about gender difference, including the claims that higher education made women infertile, that women's brains were inherently inferior to men's, and that men were more variable (and more likely to be geniuses) than women. In each case, women used their newly minted enthusiasm for science to conduct their own studies and enlisted the evidence of their experiences. Ultimately, women invalidated these three scientific

theories as well as changed the parameters of scientific research by demanding that it abide by higher standards and include more representative samples.

Just as evolution inspired people to apply science to questions of gender difference, so, too, did it spark the scientific study of sex. Chapter three examines the outburst of scientific studies of sex and attraction which followed the publication of *The Descent of Man.* These studies attempted to decode the details of sexual selection among insects and animals as well as the mystery of human love. This chapter also demonstrates that new, Darwinian ideas about courtship and attraction infiltrated prescriptive literature and popular culture, encouraging men and women to heed evolutionary standards of fitness and mate selection. In the *Descent*, Darwin posited that females selected mates in all animal species except humans. This revelation prompted many social reformers and feminists to propose that women reclaim the power of selection, providing the possibility for a feminist interpretation of sexual selection as well as paving the way for increased female control of reproduction.

Furthermore, Darwin's emphasis on reproduction, along with his description of the animalistic roots of human coitus, overturned the longstanding belief that pregnancy was, by design, painful and debilitating (because that was Eve's curse). Chapter four examines new ideas about motherhood prompted by the Darwinian worldview. Many women, doctors, and reformers challenged popular belief in Eve's curse and, instead, advocated fit and healthy pregnancy. Similarly, inspired by Lester Frank Ward's feminist interpretation of evolution (his "gynaecocentric theory"), Charlotte Perkins Gilman set out to upend familial hierarchies by demanding a reevaluation of domestic labor. At the

same time, women across the political spectrum began studying heredity and attempting to apply its lessons to their reproductive decisions.

Overall, evolutionary explanations of gender and sex were multivalent and provided fodder for feminists and antifeminists alike. While the ultimate import of evolution's contributions to our understandings of gender and sex remains to be determined, the theory unquestionably revolutionized the ways Americans thought about their bodies, the reproductive process, and what it meant to be male or female. By the turn of the twentieth century, evolution had displaced Adam and Eve as sole arbiters of gender and pushed feminist thought beyond the Bible and natural rights, but it ushered in new scientific gender paradigms with which we are still grappling and which my dissertation attempts to help us better understand.

Chapter One: The Battleground for Women's Rights Shifts From Eve to Evolution

> "It was authoritatively decreed from time immemorial that man is the superior, physically, mentally, legally, and by Divine ordinance. This position remained unshaken in the early days of brute supremacy and dominant muscular strength. Now it is universally controverted. . . . Nothing, therefore, but the most thoroughly sifted and undeniable scientific evidence, can now make us cling to the old dogma of feminine inferiority. The old theory of a righteous vassalage of one sex to the other, must be shown to us endorsed by the clear sign-manual of Nature herself; else we must continue to believe that equal halves make the perfect whole." [1]
>
> Antoinette Brown Blackwell, 1875

When Antoinette Brown (later Antoinette Brown Blackwell) entered Oberlin College in 1845, she intended to become the nation's first ordained female minister. On September 15, 1853, she succeeded, ascending to the pulpit of her own parish in South Butler, New York. However, her hard won and historic tenure lasted only a few months. After all the years of fighting the church and educational establishment for the right to preach, Blackwell had begun to read the writings of Herbert Spencer and other evolutionists. As a result of her growing interest in evolutionary science, Blackwell abandoned her beliefs that God created the universe in six days, fashioned Eve from Adam's rib, and wrote the Bible with his own hand.[2] While she retained her faith in an omnipotent higher power, she turned her attention to science and officially resigned from

[1] Antoinette Brown Blackwell, *The Sexes Throughout Nature* (New York: G.P. Putnam and Sons, 1875; reprint, The Pioneers of the Woman's Movement Series, Westport: Hyperion Press, 1976), 236-237 (page citations are to the reprint edition).

[2] Antoinette Brown Blackwell, *Antoinette Brown Blackwell: The First Woman Minister*, edited and with an introduction by Mrs. Claude U. Gilson, unpublished autobiography, 169-170. Blackwell family papers, Schlesinger Library, Radcliffe Institute, Harvard University (hereafter SLRI). See also Elizabeth Cazden, *Antoinette Brown Blackwell: A Biography* (Old Westbury: The Feminist Press, 1983). Cazden attributes Blackwell's decision to leave the pulpit to her increasing feelings of isolation and the pressure of having to stick to orthodoxy when it conflicted with her more liberal religious beliefs.

her pulpit on July 20, 1854.[3] In an 1881 letter to fellow pioneering female minister Olympia Brown, Blackwell recalled that "scientific difficulties" led to her crisis of faith and subsequent resignation.[4] In 1869, Blackwell published her first book, *Studies in General Science*, and in 1875 she became the first woman to publish a feminist critique of evolutionary theory, *The Sexes Throughout Nature*. Blackwell's experiences and writings epitomize the shift that occurred in the second half of the nineteenth century as women and men increasingly looked to evolutionary science, not the Bible, to better understand gender difference and answer the vexing "woman question."

While historians have largely overlooked the gendered ramifications of evolutionary theory, Blackwell and many other nineteenth-century Americans immediately interpreted the theory in terms of gender and sex.[5] Americans eagerly read

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[3] Ordination records, copy within drafts of Blackwell's memoir. Blackwell family papers, SLRI.

[4] Antoinette Brown Blackwell to Olympia Brown, 10 January 1881. Olympia Brown Papers, Series III, folder 134, page 5. SLRI. It is important to note, too, that Blackwell's account of her "scientific difficulties" does not mesh exactly with the chronology. In her autobiography she wrote that her spiritual crisis was precipitated by her reading of Darwin, Spencer, and *Popular Science Monthly*. Darwin's *Origins of Species*, however, was not published until 1859, and *Popular Science Monthly* was not in circulation until 1872. In the early 1850's, she did, however, read the early writings of Herbert Spencer, such as *Social Statics* (1851), which first introduced her to the concept of gradual evolution. In this work, Spencer had not yet adopted the anti-feminist views that characterized his later writings. For more on Spencer's changing views regarding women, see Nancy Paxton, *George Eliot and Herbert Spencer: Feminism, Evolutionism, and the Reconstruction of Gender* (Princeton: Princeton University Press, 1991). Another Blackwell biography links her scientific awakening to Spencer: "She was fascinated with the new discoveries of present-day scientists. . . . She read and reread portions of both the Old and New Testament, studying and comparing their opposing philosophies and beliefs; pored over the two volumes of the young English writer Herbert Spencer, *Social Statistics* [sic] and *The Development Hypothesis*. Spencer's objection to one's accepting the fact of there being different forms of life, without understanding and explaining how their development took place, appealed strongly to her sense of logic. She thought his insistence that the order of nature was a slow and gradual process seemed reasonable." Laura Kerr, *Lady in the Pulpit* (New York: Woman's Press, 1951), 145.

[5] Blackwell was not the first woman to recognize the gendered implications of evolution. In 1867, Mrs. Elizabeth Osgood Goodrich Willard, inspired by Spencerian philosophy and its search for unifying principles, published *Sexology as the Philosophy of Life, Implying Social Organization and Government* (Chicago: Published for the author by J.R. Walsh, 1867). She believed that "[o]ur religious theories have made God a masculine autocrat, and our practice has corresponded thereto." "Masculine might" controlled the human world and led to many problems, problems that could be rectified by following the example of

Charles Darwin's *On the Origin of Species By Means of Natural Selection* (1859) and *The Descent of Man and Selection in Relation to Sex* (1871) and often applied them to the "woman question."[6] To assess these responses, this chapter focuses on the words of those women and men who most frequently probed and debated what it meant to be female in nineteenth-century America – organized women, women's rights activists, and their opponents. Women read and responded to evolutionary theory in a variety of ways. Some resisted it and preferred to stick with the more familiar biblical worldview; others embraced it but argued that, to date, male evolutionists had given women short shrift; many accommodated it to their liberal Christian beliefs; and a few radicals used evolution as a platform to legitimate their disdain for organized religion. Evolutionary theory strongly influenced key feminists, and it shaped women's rights rhetoric more generally by allowing women to renounce the legacy of Eve, which had buttressed opposition to women's rights for centuries, and embrace the scientific method. Thus, not only did evolution revolutionize discussions about gender, it also forced women's rights activists to evaluate the place of religion within the movement.

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the sexes in nature (12, 16). In nature, Willard found the sexes to be equivalent, as did Blackwell, but her work was not directly in conversation with Darwin's, nor was it as widely read as Blackwell's. Willard's book was favorably reviewed in *The Revolution*, the woman's rights newspaper founded by Stanton and Susan B. Anthony in 1868. See, G.H. *Revolution* 1, 5 February 1868. The reviewer highlighted the ways in which Willard drew sexual laws from science, not from religion. This review indicated that those on the vanguard of women's rights were eager for a new gender paradigm and sought out alternatives to the biblical one they had been battling for years. If nature provided clues to the origins of life on earth, perhaps women could look to nature to provide the answers to questions about gender difference and gender roles.

[6] In this dissertation, I rely on the following editions of Darwin's principal works: Charles Darwin, *On the Origin of Species, a Facsimile of the First Edition* (1859) with an introduction by Ernst Mayr (Cambridge: Harvard University Press, 1964) and *The Descent of Man, and Selection in Relation to Sex* (1871), introduction by John Tyler Bonner and Robert M. May (Princeton: Princeton University Press, 1981).

This chapter begins with the story of Antoinette Brown Blackwell because she so clearly illuminates the transition from biblical to scientific gender paradigms that I am attempting to understand and because she articulated a major way in which women interpreted evolution – the turn from equality to equivalence.[7] In addition to arguing that the Bible supported women's rights, antebellum feminists often relied on the enlightenment notion of natural rights to bolster their cause; after 1870, however, many feminists had tired of debating the same biblical passages and were frustrated with the limits of natural rights ideology. In turn, many embraced evolutionary science and began demanding rights based on equivalence – the idea that women were fundamentally different from men but equally important and equally deserving of rights. Darwinian evolution provided scientific backing for claims of equivalence and key women's rights activists frequently invoked it.

[7] For other scholars who have written about Blackwell, see, for example, Rosalind Rosenberg, "In Search of Woman's Nature, 1850-1920," *Feminist Studies* 3 (Autumn 1975): 141-154; Cynthia Eagle Russett, *Sexual Science: The Victorian Construction of Womanhood* (Cambridge: Harvard University Press, 1989); Elizabeth Anne Munson, "Thwarted Nature and Perverted Wisdom: Antoinette Brown Blackwell's Critique of Evolutionary Theory" (M.A. thesis, Pacific School of Theology at Berkeley, 1990); Marie Tedesco, "A Feminist Challenge to Darwinism: Antoinette L.B. Blackwell on the Relations of the Sexes in Nature and Society" in *Feminist Visions*: *Toward a Transformation of the Liberal Arts Curriculum*, ed. Diane Fowlkes and Charlotte McClure (University: University of Alabama Press, 1984): 53-65; Tedesco, "Science and Feminism: Conceptions of Female Intelligence and Their Effect on American Feminism, 1859-1920" (Ph.D. diss., Georgia State University, 1978); Griet Vandermassen, *Who's Afraid of Charles Darwin?: Debating Feminism and Evolutionary Theory* (New York: Rowman and Littlefied, 2005), 59-60, 70-73; Vandermassen, "Sexual Selection: A Tale of Male Bias and Feminist Denial," *European Journal of Women's Studies* 11 (2004): 9-26; Vandermassen, Marysa Demoor and Johan Braeckman, "Close Encounters with a New Species: Darwin's Clash with the Feminists at the End of the Nineteenth-Century, in *Unmapped Countries: Biological Visions in Nineteenth-Century Literature and Culture*, ed. Anne-Julia Zwierlein (London: Anthem Press, 2005): 71-81; Sally Gregory Kohlstedt and Mark R. Jorgensen, "'The Irrepressible Woman Question': Women's Responses to Evolutionary Ideology," in *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender*, ed. Ronald L. Numbers and John Stenhouse (Cambridge: Cambridge University Press, 1999): 267-293; and Penelope Deutscher, "The Descent of Man and the Evolution of Woman," *Hypatia* 19 (Spring 2004): 35-55. For a discussion of Darwin and the women's movement in England, see Elizabeth Fee, *Science and the "Woman Question", 1860-1920: a Study of English Scientific Periodicals* (Princeton, NJ: 1978) and Elizabeth Fee, "Science and the Woman Problem: Historical Perspectives," in *Sex Differences: Social and Biological Perspectives*, edited and with an introduction by Michael S. Teitelbaum (Garden City: Anchor Books, 1976): 175-223.

Furthermore, not only was Blackwell the first woman to publish a response to evolutionary theory, she was also the first to reinterpret the theory for feminist purposes. She accepted the major tenets of evolution but rejected Darwin's assessment of female contributions to the evolutionary process. Blackwell wrote her own evolutionary theory, focusing on the natural complementarity of the sexes, and placed women at the center of evolutionary progress. She was also an active participant in the women's movement. As such, she provides an ideal window through which we can see the impact of evolution on nineteenth-century feminist thought and the potential for feminist interpretations of evolution.

Second, I analyze the ways in which other women's rights adherents applied Darwin's theories to the "woman question." In general, these women recognized that evolution invalidated the Eve story and welcomed the entrance of science into the debates on gender, though most reconciled it with liberal theology. They believed that previous scientific assessments of gender difference had often been skewed by the scientists' personal views of women, but trusted that the scientific method, when applied properly, would reveal the truth about women's traits and abilities. I also trace arguments for "equivalence" through these sources and study the ways in which biological theories of difference bolstered white racism within the women's movement.

In the final section of this chapter, I argue that the broad-based acceptance of evolution provided a boost in popularity to the freethought movement and those feminists within it, furthering the rift between them and the suffragists who had maintained their Christian beliefs. This is most evident in the controversies surrounding Elizabeth Cady

Stanton and her *Woman's Bible* (1895). This section also examines the ways in which opponents of women's rights revitalized their campaign in the 1880s by invoking Eve and how women relied on evolutionary discourse to reject the Garden of Eden myth yet again.

Antoinette Brown Blackwell and Gender "Equivalence"

As a woman drawn to women's rights by her personal faith and religious convictions, Antoinette Brown Blackwell is representative of most of the participants in the nineteenth-century women's rights movement, many of whom came of age during the Second Great Awakening. Rooted in the Revolutionary era's call for Americans to become virtuous citizens of the new nation, the Second Great Awakening, as historian Robert Abzug has explained, sought not only to revive religion but also to sacralize American society.[8] As a result of the efforts of revivalist preachers such as Charles Grandison Finney, thousands of Americans were converted to the task of perfecting themselves and remaking American society. Throughout the first half of the nineteenth century, dozens of reform movements surfaced across the country, mainly in the northeast and especially in the so-called burned over district of upstate New York, catching women like Antoinette Brown Blackwell and Elizabeth Cady Stanton in their wake. The most popular of these reform movements were temperance and abolition, out of which eventually grew a free-standing movement for women's rights.

[8] Robert H. Abzug, *Cosmos Crumbling: American Reform and the Religious Imagination* (New York: Oxford University Press, 1994).

Both Blackwell and Stanton were personally touched by Finney's preaching. After listening to his sermon in 1831, Blackwell's father wrote that Finney "changed the whole current of our family life."[9] Finney later became Blackwell's mentor at Oberlin College, despite the fact that he did not approve of women speaking in public (Blackwell felt that her personal relationship with God confirmed her dream of becoming a minister).[10] Elizabeth Cady Stanton, never one to let the facts get in the way of a good story, recalled that she, too, had been deeply moved and terrified by hearing Finney preach during a revival in Troy, New York in 1831 while she was a student at Emma Willard's Female Academy. Throughout her life, she vividly recounted her resultant spiritual crisis, which included months of nightmares about hell. Finally, a six-week regimen of reading nothing but science, liberal theology, and rational philosophy cured her and cemented her skepticism of religious orthodoxy. In contrast to Stanton's memory, however, Finney actually preached in Troy in 1827 when she was still living with her parents in another town. Historian Kathi Kern analyzed this discrepancy and concluded that even though Stanton most likely did not hear Finney preach as she claimed, the story of her "failed conversion" shaped her thoughts on Christianity and her turn to agnosticism.[11] Stanton's memories also attest to the deeply personal and urgent,

[9] Cazden, 9.
[10] Ibid., 46.
[11] Kathi Kern, *Mrs. Stanton's Bible* (Ithaca: Cornell University Press, 2001), 40-49. An earlier biography accepted Stanton's account of her encounter with Finney and stressed the importance of this failed conversation to her later religious liberalism: Lois W. Banner, *Elizabeth Cady Stanton: A Radical for Women's Rights*, The Library of American Biography series, ed. Oscar Handlin (Boston: Little Brown, 1980). Stanton was officially introduced to reform circles through her cousin Gerrit Smith, an abolition and temperance leader who also typified the reformist spirit of the Second Great Awakening.

millennial religious convictions that propelled many of the pioneers of the women's rights movement to enter reform circles.

Years after her encounter with Finney, Antoinette Brown Blackwell was introduced to the antebellum women's rights movement through her friend Lucy Stone. Blackwell's longtime friendship with Stone began when they were undergraduates at Oberlin College. In fact, it began even before Blackwell arrived at the campus. On the train out west, Blackwell happened to sit next to an Oberlin trustee who warned her against any association with a student named Lucy Stone, whom he described as "extremely brilliant but very radical and therefore not a desirable companion." Upon arrival, Blackwell's first question was, naturally, "which is Lucy Stone?"[12] The two became fast friends despite their differing opinions on the church (Stone had already renounced the church and chided Blackwell for her naïve attempts to change it from within).[13] Later, they embarked on parallel public lives as speakers and reformers.

In 1850, Stone invited Blackwell to the first national women's rights convention in Worcester, Massachusetts. Blackwell was reluctant to attend because she was leery of being affiliated with the Garrisonians, followers of the radical abolitionist William Lloyd Garrison who supported women's right to speak in public. But, after attending an antislavery meeting of the opposing wing which did not allow women to speak, Blackwell decided that perhaps the Garrisonians weren't so bad. At the Worcester

[12] Antoinette Brown Blackwell, "Reminisces of Early Oberlin," unpublished manuscript, 1918, Blackwell family papers, SLRI Library. For additional information on the relationship between Blackwell and Stone, see Carol Lasser and Marlene Deahl Merrill, ed., *Friends and Sisters: Letters Between Lucy Stone and Antoinette Brown Blackwell, 1846-93* (Urbana: University of Illinois Press, 1987).

[13] According to Cazden, Stone repeatedly warned Blackwell about "that wall of bible, brimstone, church and corruption, which has hitherto buried women into nothingness" (45).

meeting, she made many friends and admirers with a speech, first written as a paper at Oberlin, refuting biblical injunctions against women speaking in public.[14]

From 1850 on, Blackwell participated actively in women's rights. While her formal activities and organizational connections waxed and waned throughout the years, she was forever wedded to the movement by her marriage to Samuel Blackwell, which made her the sister-in-law of Henry Blackwell and his wife, her old friend Lucy Stone. Together, Henry Blackwell and Lucy Stone led the American Woman Suffrage Association (AWSA) and published the nineteenth century's leading women's rights newspaper, the *Woman's Journal*, to which Antoinette was a frequent contributor. Despite her close relationship with Stone, she always managed to remain on good terms with the AWSA's one-time rivals, Elizabeth Cady Stanton and Susan B. Anthony and their more radical suffrage group, the National Woman Suffrage Association (NWSA). In particular, Blackwell and Stanton shared an interest in science and in questions of gender beyond women's right to vote.

Key to Blackwell's early feminism was her unorthodox interpretation of the Bible and her firm belief that in Christ there was no male or female. In this regard, she typified the rhetoric of the antebellum women's rights movement. To establish that God was in fact on their side, women's rights adherents exhaustively debated the meanings of specific biblical passages with their opponents as well as countered seemingly sexist verses with ones that could be interpreted as progressive. The most frequently debated biblical books were Genesis and the Gospels of Paul. Women argued that Paul's

[14] Cazden, 56-57.

prohibition against women speaking in church pertained to different women in a different era, and they offered many counter narratives exculpating, or at least sympathizing with, Eve. Above all, women found evidence in the Bible for their spiritual equality and felt that God loved them just as much as he did men.

As the first woman to complete formal theological coursework and be ordained in a church, Blackwell was uniquely qualified to argue the Bible for women's rights, which she did in earnest throughout the 1840's and 1850's. In 1852, for example, Blackwell offered the following resolution at the National Woman's Rights Convention at Syracuse, New York: "RESOLVED, That the Bible recognizes the rights, duties and privileges of woman as a public teacher, as every way equal to those of men; that it enjoins upon her no subjection that is not enjoined upon him; and that it truly and practically recognizes neither male nor female in Christ Jesus."[15] Here, Blackwell attempted to distinguish between her interpretation of the Bible and the church doctrine that had obstructed her training and ordination.

Perhaps the biblical passage quoted most frequently by nineteenth-century women's rights advocates was Galatians, chapter three, verse 28, which stated that there was no male or female in Christ. Henry Ward Beecher took this as the topic for his address at the eleventh annual National Woman's Rights Convention in 1866. He exhorted his audience to trust that America would never fulfill its potential until people accepted that:

> '[t]here is neither Jew nor Greek, there is neither bond nor free, there is neither male nor female; for ye are all one in Christ Jesus.' And when that day comes;

[15] Blackwell with Gilson, unpublished memoir, 349.

> when the heavenly kingdom is ushered in with its myriad blessed influences; when the sun of righteousness shall fill the world with its beams as the natural sun, coming from the far South, fills the earth with glorious colors and beauty; then it will come to pass that there shall be no nationality, no difference of classes, and no difference of sexes. Then all shall be one in Christ Jesus.[16]

This message resonated powerfully with reformers up until the middle of the nineteenth century. Eventually, however, women and male feminists tired of continually repeating Galatians 3:28, rebutting St. Paul, or reinterpreting what happened in the Garden of Eden.[17] By the time Darwin published the *Origin of Species*, they were ready to embrace a new gender paradigm.

Thus, it is not surprising that what shook Blackwell's faith in orthodox Christianity was not the years of fighting her fellow believers for the right to preach or the years of addressing often hostile crowds on the reform lyceum circuit – these obstacles she must have expected. Rather, it was her reading in the burgeoning field of evolutionary science, namely Darwin, Spencer, and *Popular Science Monthly*. As she recalled in her unpublished memoirs:

> Before I had been many months at South Butler [her first parish], I began to be assailed by theological doubts. Undoubtedly I had a strong bent toward speculative topics. This increased by this habit of reading metaphysical books. When travelling with Miss [Susan B.] Anthony I generally carried a heavy volume along some of these lines, studying it as opportunity offered. During this

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[16] Henry Ward Beecher, "Woman's Duty to Vote," 10 May 1866, Suffrage Collection, Box 3, Sophia Smith Collection, Smith College, Northampton, Massachusetts (hereafter SSC).

[17] Examples of pro- and con- suffrage pamphlets that focused on Adam and Eve include: "The Law of Woman-Life" Women's Rights Collection, box 1, folder 3, no date, SSC; Samuel J. May, "The Rights and Conditions of Women; considered. . ." (Syracuse: Stoddard and Babcock, 11/6/1846), Women's Rights Collection, SSC. May begins with Genesis V:1 and Galatians III:28 and argues that female disenfranchisement is unjust. Rev. John Todd, DD., "Woman's Rights" (Boston: Lee and Shepard, 1867). Women's Rights Collection, SSC. Todd bemoaned the "tendency of our generation to break up old associations, and to be emancipated from the beliefs of our fathers." He said this tendency was so strong that people would "rather feel relieved to have you convince them that that they sprung from a race of apes and gorillas" and asserted God's plan as evidenced in the Bible and, particularly, in the Garden of Eden.

> time I was reading rather extensively on both sides of questions of religious opinion. Darwin and Spencer were beginning their publications. Mr. Yeomans, through the Popular Science Monthly and still more widely through the Tribune and other journals was spreading Herbert Spencer's ideas effectively in this country. . ..[18]

As Blackwell pondered what it meant to live in a universe governed by logical, evolutionary principles, such as gradual change and the survival of the fittest, she quickly understood that Darwin and Spencer not only threatened the foundations of biblical literalism, they also offered entirely new ways of thinking about gender.

While Darwin did not set out to upend traditional gender paradigms (to the contrary, he was quite comfortable in the Victorian ones in which he lived), he unwittingly did by prioritizing reproduction, describing the development and function of secondary sex characteristics, firmly placing humans within the animal kingdom, and postulating that gender differences served an evolutionary purpose.[19] In the *Origin of Species* (1859) Darwin established his argument for the gradual evolution of all species from a common organism through the process of natural selection whereby those individuals who were the best adapted to their environment would be more likely to survive and pass on their traits to offspring. In the *Origin*, Darwin only hinted at the ways in which his theory might pertain to humans, though most of his readers immediately grasped the implications. For one thing, if one accepted Darwin's theory, there was no such thing as the Garden of Eden.

In *The Descent of Man, And Selection in Relation to Sex* (1871), Darwin applied his evolutionary theory specifically to humans. In the first section, he established that

[18] Blackwell, with Gilson, unpublished memoir, 169.
[19] Darwin enjoyed a very conventional marriage and had ten children.

humans descended from animals with whom they shared both physical and mental traits and that all organisms had a common ancestor. In the second, he laid out his theory of sexual selection, which he claimed was as important as natural selection in driving the evolutionary process. In Darwin's words, sexual selection referred to the "advantages which certain individuals have over other individuals of the same sex and species, in exclusive relation to reproduction."[20] Some traits –such as beards on men – were passed on to the next generation not because they enhanced one's chances of survival but because they increased one's odds of mating.[21] In the *Descent,* Darwin's main points about gender were: 1) sexual selection led to the development of secondary sexual characteristics; 2) these characteristics differed between races; 3) the males of all species were more varied than the females; 4) in all species except humans, the females selected mates; and 5) the most advanced species were those in which the sexes were most differentiated.

When writing about sex differentiation, Darwin asked, what traits distinguished the males from the females; or, in other words, what traits did females lack or possess in an inferior degree? Invariably throughout the *Descent,* the answer was that males were stronger, both mentally and physically, and possessed more passion along with "greater courage and pugnacity." Indeed, according to Darwin, sexual selection established and perpetuated male superiority. After generations of competing for females, Darwin concluded "man has ultimately become superior to woman." In addition to providing a biological basis for long-held suspicions about female inferiority, Darwin's theory also

[20] Charles Darwin, *The Descent of Man*, 256.
[21] The debates surrounding sexual selection will be discussed extensively in chapter 3.

prioritized reproduction as the most important human activity, both of which fed directly into ongoing Victorian debates about woman's proper sphere.

Even though Spencer first introduced Blackwell to evolution, it was Darwin who inspired her to pick up her pen. Blackwell spent most of the 1860's voraciously reading science and philosophy and developing her own theory of the universe, a theory that she hoped would reconcile science with religion once and for all. This decade of grappling with metaphysical concepts and faith itself resulted in the publication of Blackwell's first book, *Studies in General Science* (1869), in which she advanced her own "eclectic" theory of development. She reinterpreted the struggle for existence as a story of co-adaptation and sacrifice, of a well-planned system that was mutually beneficial, not competitive or individualistic. Within evolution, Blackwell saw cooperation and harmony, not violence and struggle. She believed that humans had a unique place in God's scheme, and that God had set the complex processes of evolution in motion.[22] She even sent Darwin a copy of her book, to which he replied "Dear Sir."[23] Perhaps Darwin had not envisioned a female audience, let alone female critics.

Blackwell's desire to supplant male virtues with female ones as the driving forces in evolution and her focus on cooperation instead of competition prefigured the arguments in her second and much better known book, *The Sexes Throughout Nature* (1875). A compilation of Blackwell's essays about evolution first published in *Popular Science Monthly* and the *Woman's Journal*, *The Sexes Throughout Nature* was the first

[22] Antoinette Brown Blackwell, *Studies in General Science* (New York, G.P. Putnam and Son, 1869). For an excellent history of this book, see Cazden 143-154.

[23] Charles Darwin to Antoinette Brown Blackwell, 8 November no year, Blackwell Family Papers, SLRI. The letter itself is very brief and thanks Blackwell for sending the book.

feminist critique of Darwin's *The Descent of Man* and other key evolutionary texts. Blackwell was an enthusiastic proponent of evolution, but she believed Darwin and Spencer's statements regarding gender differences were skewed by their male perspective and that to truly understand women's role in evolution, one needed to hear from a woman: "Whatever else women may not venture to study and explain with authority, on this topic [women's nature] they are more than the peers of the wisest men in Christendom."[24] She hoped that *The Sexes Throughout Nature* contained "a new scientific estimate of feminine nature, from its earliest dawning in the plant up to developed womanhood in all its present complexity."[25] To understand gender, according to Blackwell, one needed to study nature, compile women's experiences, and apply the scientific method. Even though Darwin and Spencer's traditional views on women tainted their pronouncements about gender, Blackwell trusted that nature and the scientific method, when applied properly, would reveal the truth about gender differences. *The Sexes Throughout Nature* highlighted the key ways in which women adapted evolution for feminist purposes: trust in the scientific method, looking to the animal and plant kingdoms for evidence of other gender systems, and thinking critically about the role of reproduction in the evolutionary process.

Blackwell was especially drawn to Darwin's use of logic and the potential for unbiased scientific studies of gender. Throughout her critique, Blackwell stressed that she agreed with Darwin's method, but charged that he failed to apply it accurately when it came to questions of gender difference. She saw her work as rectifying this oversight

[24] Antoinette Brown Blackwell, *The Sexes Throughout Nature*, 6-7.
[25] Ibid., 7.

and putting the "scientific" back in the scientific method. After leaving the pulpit, Blackwell abandoned theological pronouncements about gender for scientific proof and stressed that, like all other reasoning, her argument must "be tested by the accumulation of pertinent facts which will either expose its fallacies or furnish its final justification."[26] To women like Blackwell, the scientific method offered the promise of truth and fairness, especially when it came to highly charged issues like the proper role of women.

In *The Sexes Throughout Nature*, Blackwell also adopted Darwin's methodology by drawing on copious examples from all levels of the animal kingdom to support her assessment of the female role in evolution. Blackwell had previously combed the Bible for feminist antecedents and evidence of God's egalitarianism; now she turned to nature. In the plant and animal kingdoms, she found ruling female insects, males who cared for their young, and a tremendous variety of reproductive labor. Blackwell praised, for example, the male fish who built nests alongside female fish and those who had "the extraordinary habit of hatching eggs laid by the females within their mouths or bronchial cavities."[27] By looking at the animal kingdom, Blackwell found proof that female inferiority was neither universal nor inevitable. Darwin believed that male dominance was both responsible for human advancement and proof of human superiority; but, compared to the ways in which many animals, fish and insects organized their domestic and reproductive labor, Blackwell found human gender relations unnatural and unfair.

Blackwell's main aim in writing, however, was not to test out the scientific method or better acquaint herself with the amative habits of fish; she wanted to challenge

[26] Ibid., 8.
[27] Ibid., 73.

male evolutionists' pronouncements about the "natural" inferiority of women. In "Sex and Evolution," the first essay in *The Sexes*, Blackwell refuted Spencer's theory that reproductive functions arrested female development and Darwin's theory that sexual selection inevitably resulted in male superiority. Darwin and Spencer, she charged, were not vitally interested in the question of male superiority and, thus, they did not apply the same mental powers or vigorous tests to this issue as they did in other areas of their work. Yet, she persisted, readers were expected to accept their pronouncements on gender just as they did their ideas on evolution.[28] She argued that both authors succumbed to ingrained ideas of male superiority, causing them to miss crucial aspects of feminine nature. In particular, she rejected Darwin's claim that male superiority was an inevitable byproduct of evolution and cautioned "[t]he facts of Evolution may have been misinterpreted, by giving undue prominence to such as have been evolved in the male line; and by overlooking equally essential modifications which have arisen in the diverging female line."[29] She listed several examples from the animal kingdom to prove her point that the more courageous, stronger males praised by Darwin were not necessarily superior to the more highly developed and complex females who could do many unique things such as feed their offspring from their own bodies. For example, she compared the lion to the lioness and argued that while the female is "less strong and valiant in hunting . . . her greater heterogeneity is a full equivalent for this deficiency." According to Blackwell, all species required the complementary functions of males and females to survive and evolve.

[28] Ibid., 15.
[29] Ibid., 20.

Blackwell believed the entire living universe was sexed and that sexual complementarity predominated all forms of life, including plants. She drew up elaborate tables to illustrate the comparative strengths of each sex throughout the animal and plant kingdoms (figures 1-4).[30] Here, Blackwell divided each species into two columns: male and female. Then, she assigned pluses and minuses in various categories such as size, strength, sexual love, and parental love to demonstrate that there were an equivalent number of pluses and minuses in the male and female columns. In the animal and plant kingdoms, Blackwell found that "greater activity in one sex may fairly balance superior nutritive functions in the other; while, by the law of inheritance, their posterity will be equally advantaged by both, and lifted towards a higher development in both lines of evolution."[31] Where Darwin saw only female inferiority and weakness, Blackwell saw female difference, complementarity, and equivalence. Blackwell concluded that the sum total of the "male" column equaled that of the "female" column.

These tables demonstrate the central contribution of Blackwell's study: the idea of gender equivalence. She accepted Darwin's premise that the most advanced species were those in which the sexes were the most differentiated, but she believed that he underestimated women's special qualities. Women were not inferior to men; they were equivalent. Using her experience as a working mother of five along with several examples from the animal kingdom, she argued that the females of all species possessed traits and skills comparable to those of the males. Blackwell defined females as "equals

[30] Ibid., 55-58.
[31] Ibid., 60-61.

but not identicals in development and in relative amounts of normal force," and her arguments rang true for many women's rights activists.[32]

Popular Science Monthly, the vehicle through which many Americans learned about evolution, reviewed *The Sexes Throughout Nature* in July 1875. The reviewer welcomed, albeit in a patronizing way, Blackwell's contribution to the ongoing discussion of evolution but chastised her for attempting to assign value to male and female traits. To the reviewer, this was an absurd endeavor. Who could devise a value-system capable of measuring such distinct characteristics? His main objection, however, was that Blackwell did not include maternity as one of women's special functions:

> We looked over this enumeration with special interest, to see what value would be assigned to maternity, the grand function of the female sex, to which every thing else is subordinated. But it is either left out of the estimate, or must be included under products. Maternity is thus so generalized as to be described in terms applicable to both sexes. Now, we do not like this depreciation of the feminine side. Denying, as we do, the equality of the sexes, and holding to the superiority of the female sex, we protest against the degradation of woman implied in losing the supreme and distinctive purpose of her nature among the *plus* and *minus* products common to the sexes.[33]

Popular Science Monthly reiterated a familiar objection to women's rights – that maternity somehow set women apart from the rest of the species —and took Blackwell to task for implying that men and women should play equivalent roles in childrearing and domestic tasks.

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[32] Ibid., 11. A handful of male evolutionary scientists, including Cornell's Burt Green Wilder, also believed that evolution established gender equivalence, not female inferiority. For a discussion of Wilder, see William Leach, *True Love and Perfect Union: The Feminist Reform of Sex and Society* (New York: Basic Books, 1980), 44-50.

[33] "The Sexes Throughout Nature," *Popular Science Monthly* 7 (July 1875): 371.

Blackwell was guilty as charged. Rather than place motherhood at the top of human activities, she prioritized parenthood. She believed that men should play a larger role in caring for offspring, and she argued that "natural selection must tend to maintain equivalence in the two sexes of every species" which precluded significant distinctions in domestic and professional labor.[34] Blackwell's analysis of gender differences was complicated: on the one hand she firmly believed that the sexes naturally differed in stereotypical ways, but, on the other hand, she thought that men and women were evolving to become more alike, which contrasted the prevailing view of evolutionists who argued that sexual differentiation increased with racial advancement. According to Blackwell, the more closely equivalent the sexes, the more fit and greater in number the offspring would be. To foster this development, she called for, among other things, greater male involvement in household tasks, full employment and educational opportunities for women, readjustment of domestic power relations, and physical exercise for women. She claimed that:

> Evolution has given and is still giving to woman an increasing complexity of development which cannot find a legitimate field for the exercise of all its powers in the household. There is a broader, not a higher, life outside which she is impelled to enter, taking some share also in its responsibilities. . .
> No theory of unfitness, no form of conventionality, can have the right to suppress any excellence which Nature has seen fit to evolve. Men and women, in search of the same ends, must co-operate in as many heterogeneous pursuits as the present development of the race enables them both to recognize and appreciate.[35]

If nature had endowed women with intellect and desires not fulfilled in domesticity, then forcing women to remain in the home thwarted evolutionary progress. Significantly for

[34] Blackwell, *The Sexes Throughout Nature*, 33
[35] Ibid., 135-137.

Blackwell, the "woman question" was not just about women; in order for the question to be satisfactorily answered, men would have to change, too.[36]

Throughout the *Sexes*, Blackwell relied on evolutionary principles and language to buttress her demands for feminist reform. Evolutionary theory shaped her worldview and her ideas about gender. At the same time, the scientific method, coupled with her observations of nature, equipped her with the tools she needed to counter traditional ideas about female subordination. In addition to looking to the animal kingdom and trusting in science to reveal the truth about gender differences, Blackwell envisioned a world where men and women became more alike and one in which gender relations evolved to reflect this change. She shared her feminist interpretation of evolution with her peers in women's organizations, scientific groups, and many journals, and her writings have inspired generations of women who have managed to come across her book. Pioneering primatologist and sociobiologist Sarah Blaffer Hrdy, for example, credited Blackwell with being "a true beacon in the night" and lauded her critique of Darwin as "the road not taken."[37] Blackwell's work highlights evolution's revolutionary potential for understanding gender and exemplifies the ways in which evolutionary discourse impacted nineteenth-century feminist thought.

[36] Blackwell anticipated the arguments of Charlotte Perkins Gilman (who will be discussed in chapter 4) in suggesting that household chores reflect new, evolutionary assessments of gender.

[37] Sarah Blaffer Hrdy, *The Woman that Never Evolved* (Cambridge: Harvard University Press, 1981), ix and 13.

Evolution in Women's Clubs and Women's Rights

In the decades following the publication of *The Descent of Man*, Antoinette Brown Blackwell was just one of many women who realized that evolution forced a reevaluation of gender and sex, which was a welcome change for many. After years of being told that the Bible provided an impenetrable justification for female subordination, women were quick to embrace new, scientific gender paradigms that did not focus on who said what to whom in the Garden of Eden. Eliza Burt Gamble, a feminist and advice book author, spoke for many other women when she expressed surprise that evolutionary science had not completely invalidated the theological doctrine of woman's inferiority based on Adam and Eve: "The above doctrines [women's creation by a 'surgical operation'] when enunciated by the theologians need cause little surprise, but with the dawn of a scientific age it might have been expected that the prejudices resulting from those doctrines might disappear."[38] Disappointed that male scientists had not immediately recognized the feminist possibilities of evolutionary theory, forward-thinking women eagerly applied evolution to the "woman question" themselves. In the final decades of the nineteenth century, women's club and women's rights networks probed the nature of gender differences, advanced scientific knowledge among women, and encouraged women to engage in science. Through their conferences, meetings, and publications, women cheered the demise of the Eve paradigm, expressed faith in evolutionary science to settle questions of gender difference (which they trusted would be

[38] Eliza Burt Gamble, *The Sexes in Science and History: An Inquiry into the Dogma of Woman's Inferiority to Man*, a revised edition of *The Evolution of Woman* (1893) (New York: G.P. Putnam's Sons 1916), vii.

favorable to them) and shifted from arguing for women's rights based on equality to arguing for rights based on equivalence.

Evolution prompted people to question what it meant to be male or female and where exactly one could turn for reliable information on this important question. Feminists were keen to discern whether women's proper place could be determined from science, the Bible, or both. Prominent woman's rights activist Thomas Wentworth Higginson commented on the struggle for prominence between biblical and scientific gender roles:

> In the ages of chivalry, when two knights fought, the lady could only await the issue of the contest, and rejoice if she had reason think that, however it ended, the victor would be merciful to her. According to the newspapers and the philosophers, the great contest of to-day is between religion and science. It is not necessary for woman as such, to take sides with either; but it is a good sign for her that both contestants make concessions in her favor, and she has thus a double ground of hope.[39]

Like many nineteenth-century Americans, Higginson recognized that evolutionary theory had important ramifications for gender and interpreted it accordingly. Even though he saw grounds for hope in both religion and science, ultimately he threw in his lot with science, as did many other progressive feminists. For most, this turn to science also meant admitting the existence of biological gender difference. To reconcile the seeming contradiction of arguing for equality on the basis of difference, women's rights proponents advanced arguments that can best be summarized as women were "different but equal" to men. As Higginson explained, "Certainly the strongest arguments in favor

[39] T. [Thomas] W. [Wentworth] H. [Higginson], "The Two Camps," *The Woman's Journal*, 19 August, 1882.

of Woman Suffrage are based not on the identity, but on the difference of the sexes."[40] However, his emphasis on biological difference contrasted biblically ordained gender difference because in science and nature feminists saw gender complementarity along with verifiable, unbiased evidence, whereas in the Bible they saw female subjugation and worn-out dogma.

As early as 1868, some women's rights leaders began to express their loss of faith in both the Bible and natural rights rhetoric, the two staples of antebellum feminist thought, as vehicles for elevating women's degraded position. In pages of *The Revolution*, for example, the short-lived women's rights newspaper founded by Elizabeth Cady Stanton and Susan B. Anthony, gender paradigms were in flux and the writers eagerly embraced science, particularly as revealed in evolutionary theory, as their new truth-system. Stanton's enthusiasm for evolutionary science justified and fueled her growing skepticism of organized religion and convinced her of the folly of applying natural rights principles to women, who clearly were not the same as men.

Stanton's first and arguably most significant contribution to American feminist thought was the 1848 Declaration of Sentiments, the emblematic text of the first women's rights convention convened in Seneca Falls, New York. She modeled this document on the Declaration of Independence and demanded equal rights, including suffrage, for women, epitomizing the influence of natural rights rhetoric on the women's movement. Stanton's frequent articles in *The Revolution*, however, reveal that her faith in enlightenment ideals waned after lawmakers, with the support of most abolitionists,

[40] T. [Thomas] W. [Wentworth] H. [Higginson] in Julia Ward Howe, ed., *Sex and Education, a Reply to Dr. Clarke's "Sex in Education"* (Boston: Roberts Brothers, 1874), 34.

refused to include women in the 14th and 15th amendments (which enfranchised black men but not women) and after the unsuccessful Kansas campaign for universal suffrage in 1867. For twenty years, Stanton had believed that natural rights meant human rights, only to learn that for all intents and purposes natural rights meant male rights. In response, she increasingly relied on the rhetoric of equivalence, much like Antoinette Brown Blackwell, rooted in her idiosyncratic interpretation of Auguste Comte's Positivism and Darwinian evolution.[41] From the late 1860's till her death, Stanton defined men and women as naturally different and argued that the universe was out of balance because "[t]he men at the helm, lacking the spiritual intuitions of women by their side, are steering without chart or compass."[42] Stanton continued to espouse equivalence in her later writings, with the exception of her famous 1892 speech "The Solitude of Self," which could be considered the swan song of natural rights within nineteenth-century feminist discourse. For example, Stanton published a short article in the *Woman's Tribune* in 1900 entitled "Equilibrium of Sex" in which she asserted that "masculine and feminine elements are not the same; hence the importance that they should be in equilibrium, and always together." The problem with society was that male

[41] Stanton published translations from Comte's *Positive Polity* (1851-1854) in *The Revolution*. Comte posited a world of balanced sex difference and called on the active incorporation of the female element into government and customs: "Hence, to complete the modern renovation of our social system, to which woman has been hitherto considered as a stranger, it is necessary to incorporate her, not as a favor, but as an indispensable means and inevitable duty, necessary to social reorganization." As quoted in "Feminine Influence of Positivism," *The Revolution*, 16 April 1868, 228. Comte, however, was no feminist and Stanton adopted his overall scheme only by willfully ignoring or misunderstanding his ideas about women. When she spent several months in England in the early 1880s, she became disenchanted with Positivism after encountering firsthand the antifeminism of many of its adherents. For an analysis of Comte's influence on Stanton, see Kathi Kern, *Mrs. Stanton's Bible*, 53-60. See also Banner, *Elizabeth Cady Stanton*, 86, 166, 168.

[42] E. [Elizabeth] C. [Cady] S. [Stanton], "Sharp Points," *The Revolution*, 9 April 1868, 212-213. In this article she also pointed out her frustration about women's suffrage being jettisoned by the same people who called for suffrage as a "natural right" for black men.

and female forces were out of balance, resulting in "moral chaos."[43] Stanton, the exemplar of feminist egalitarianism, had embraced biological gender difference, and her change of heart represented larger changes under way in the women's rights movement.

Following the defeat in Kansas and her profound disappointment about the 14th and 15th amendments, shifting from equality to equivalence made sense to Stanton. In September 1868, she devoted nearly an entire issue of *The Revolution* to the furor caused by a speech on the "identity of the sexes in mind" delivered before the British Association for the Advancement of Science by Miss Lydia Becker, a British suffragist who was also an active botanist and the first woman elected to a position in England (Manchester school board). Introducing this speech, Stanton wrote "we think it was a good move on the part of Miss Becker to take this long-debated problem of woman's sphere entirely beyond the control of popes, poets, and politicians, of Bibles, belles-lettres, and Blackstone, into the realms of pure science, that thus the daughters of Eve may at last come to a clear understanding of their nature and destiny."[44] By identifying women as "daughters of Eve" Stanton affirmed the centrality of Eve in debates about the woman question and in women's own understanding of themselves. She also expressed her frustration with laws and politicians, the outgrowth of democracy. It is no surprise, then, that she applauded the turn to "pure science." Stanton further explained the appeal of science:

> [m]an, thus far master of the situation, can form no idea of the astonishment that seizes every woman's soul, when she first awakes to the frauds that have been practiced on her sex from the beginning. And when she comes to the conclusion,

[43] Stanton, "Equilibrium of Sex," *Woman's Tribune*, 20 October 1900.
[44] E.C. S., "Miss Becker on the Difference in Sex," *The Revolution*, 24 September 1868, 184.

> as on examination every thinking mind must, that this has been a scheme on the part of selfish men for her subjugation, for which God is in no way responsible, we need not wonder, that with one simultaneous outburst of indignation, woman throws the twaddle of six thousand years to the winds, and boldly rushes to the fixed sciences to find some solid ground on which to base an argument.[45]

Frustrated with the Bible and organized religion, Stanton embraced science, which was regulated by discernable laws and supplicant to no greater power than truth. Even as Stanton expressed faith in science, however, she admitted no faith in male scientists. "Though it was well for Miss Becker to betake herself to the scientists, by way of escaping the children of cant and superstition, yet, the opinion of any society of men on the true condition of woman," Stanton warned, "is of no more value, than would that of Southern slaveholders be on the true condition of the negro." Women had to remain skeptical of any male pronouncements about their inherent traits, but science itself promised to be an ally by offering women both a fair method and an obvious method of recourse.

While Stanton applauded Becker's decision to debate the woman question in terms of science, she disagreed with her conclusions. In her controversial address, Becker claimed that there were no mental differences between men and women. On this point, Stanton disagreed. She countered that women in the U.S. had initially tried to forge a campaign for rights based on natural equality and found this strategy wanting. Instead, she, along with Blackwell and many others, had turned to equivalence based on biological gender difference because it seemed truer to their experiences and more likely to be verified scientifically. As Stanton explained:

[45] Ibid.

> We started on Miss Becker's ground [equality] twenty years ago, because we thought, from that standpoint, we could draw the strongest arguments for women's enfranchisement. And there we stood firmly entrenched, until we saw that stronger arguments could be drawn from a difference in sex, in mind as well as body. But while admitting a difference, we claim that difference gives man no superiority, no rights over woman that she has not over him. We see a perfect analogy everywhere in mind and matter; and finding sex in the whole animal and vegetable kingdoms, it is fair to infer that it is in the world of thought also.[46]

Stanton, thus, articulated three dominant themes in women's rights rhetoric of the second half of the nineteenth century, all of which owe their existence in part to the influence of Darwinian evolution: the loss of faith in both egalitarian and biblical justifications for women's rights, the turn to science (albeit with a lingering distrust of scientists), and the emphasis on women's essential difference from men as evidenced in nature.

At the same time that Stanton, Blackwell, and Becker called upon science to answer the woman question, others who sought to better under gender differences grafted science onto their interpretations of the Bible and natural rights. In a November 1868 edition of *The Revolution*, Caroline Severance announced an upcoming Women's Rights Convention to address "the equality of the sexes before God" as written in nature and in the Bible. Then, in May of 1869, *The Revolution* ran several articles comparing creation stories from various religions, trying to make sense of Adam and Eve, and, where possible, rehabilitate Eve. Other women, such as Mrs. Isabella Beecher Hooker, attempted to blend science with religion to better understand human creation and gender roles. At an 1869 women's rights convention held in Newport, Rhode Island, Hooker delivered a speech about the relation of the Bible to woman suffrage. After calling attention to the second chapter of Genesis, which described men and women as

[46] Ibid., 185

simultaneous creations, she attempted to take her argument "a step further than this, and presented a number of scientific facts to prove that the highest types of vitality take the female form."[47] By this time, the Bible could no longer stand on its own as the definitive source of information about gender or human origins; instead, Hooker buttressed religious doctrine with examples from nature that were readily observable and scientifically provable.

Antoinette Brown Blackwell called attention to the shift from biblical to scientific gender paradigms in an article in the *Woman's Journal*, the organ of the American Woman Suffrage Association (and later of the reunited National American Woman Suffrage Association, NAWSA). In "The Savans of the Woman Question," Blackwell observed: "A quarter of a century ago, a woman 'out of her sphere' was pricked at pitilessly by the sharp points of misapplied texts from Scripture. To-day, very high authorities are seeking to ground all truth on a basis of natural science. Nature is their sole text book." She argued that one would be hard pressed to find anyone who would still abide by a literalist interpretation of the biblical passages on woman's inferiority. Instead, people turned to science. Though Blackwell lamented that men had hijacked science to prove their own assumptions, not to uncover the truth:

> The wisest, the highest, the most progressive and the most influential authorities in science to-day, standing on a learned masculine eminence, looking from their isolated male standpoints through their men's spectacles and through the misty atmosphere of entailed hereditary glamour, and observing certain constitutional disabilities which undoubtedly pertain to women, are confidently reasserting the old traditional creed of Woman's inferiority. Man, they affirm, has become greatly superior to Woman in strength of body and equally so in strength of

[47] "Woman Suffrage at Newport," reprinted from the *New York Tribune* in *The Revolution*, 2 September 1869, 132- 133.

> intellect. This has been a steady, natural growth – one of the legitimate results rising from natural selection.[48]

Blackwell claimed that in the past twenty-five years those who opposed women's rights had "made a complete change of base" from religion to evolutionary science, but, she alleged, women's rights advocates had not yet learned how to respond to this shift. To Blackwell, evolutionary science was not the problem; sexist scientists and unscientific women were. She chided women for failing to take on the cultured men of science and encouraged women to study evolutionary science and incorporate it into the women's rights arsenal, which they began to do in earnest in the 1870s.

Historians have amply explored the outburst of women's associations in the decades following the Civil War, but few have examined the ways in which these women interpreted, responded to, and helped shape evolutionary discourse – perhaps the most talked about intellectual development of the nineteenth century.[49] For the most part, women enthusiastically discussed science and welcomed it as an ally, though they often demanded it be more faithful to its mandate of impartiality. The Association for the Advancement of Women (AAW), for example, was founded as a national organization for women who were not comfortable joining groups that openly espoused suffrage.[50] Member Anna Garlin Spencer described AAW membership as "a union primarily of

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[48] Antoinette Brown Blackwell, "The Savans of the Woman Question," *The Woman's Journal*, 22 July 1876, 1.

[49] In the "Genius of Women," Flavia Alaya contends that Darwinism provided the justification for women's voluntary and club work because it emphasized women's inherent nurturing skills and selflessness.

[50] For an excellent history of women's clubs, including the AAW, see Karen Blair, *The Clubwoman as Feminist: True Womanhood Redefined, 1868-1914* (New York: Holmes and Meier, 1980). The AAW is discussed on pages 40-51. According to Blair, the AAW disbanded after the founding of the General Federation of Women's Clubs made its work obsolete. See also Anne Firor Scott, *Natural Allies: Women's Associations in American History* (Urbana: University of Illinois Press, 1991).

achieving personalities."[51] An outgrowth of Sorosis (the first organization for professional women) and the New England Women's Club, the AAW convened national congresses from 1873 to 1897. Their events attracted a wide variety of women and their agendas tell us much about what was on women's minds at the end of the nineteenth century.

One item at the top of the many women's priority lists was science. AAW members elected noted astronomer Maria Mitchell as their first president and, between 1873-1890, scientific topics accounted for between one-third and one-fourth of all papers delivered at AAW conventions.[52] Within the speeches and essays delivered at women's conferences or printed in women's rights periodicals, three themes emerged: 1) encouraging women to engage with and study science; 2) faith in science and excitement about evolution; and 3) the idea that evolution was positive for women because either a) women's suffrage was the next step in evolutionary process, or b) evolution proved that women were equivalent or superior to men.

Perhaps the most dedicated and influential advocate for women in the sciences was Maria Mitchell. In 1847, Mitchell discovered a comet that bears her name and she was elected to the American Academy of Arts and Sciences in 1848. When famed naturalist Louis Agassiz sponsored her for membership in the American Association for the Advancement of Science (AAAS) in 1850, the members unanimously approved her

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[51] Anna Garlin Spencer, *The Council Idea and a Tribute to May Wright Sewall* (New Jersey: J. Heidingsfeld Company, 1930), 4; quoted in Blair, *Clubwoman*, 47, n. 53.

[52] The miscellaneous organization collection at the SSC has most of the AAW meeting programs, as well as other materials related this group. They also have a lot of material about Sorosis, the parent group of the AAW, in the Sorosis collection. Several of these papers and discussions were about heredity, which will be discussed in chapter four.

application. Throughout her life, Mitchell passionately lobbied on behalf of women in the professions, especially science. In her presidential address at the 1875 AAW convention, Mitchell highlighted the need for women in science:

> In my younger days, when I was pained by the half educated, loose, and inaccurate ways which we all had, I used to say, 'How much women need exact science,' but since I have known of some workers in science who were not always true to the teachings of nature, who have loved self more than science, I have said, 'How much science needs women.'[53]

To promote women's entry into science, Mitchell suggested that the AAW found a science society where women "engaged in the study of natural or physical science" could present their findings.[54]

Mitchell returned to the theme of women in science in her address at the 1876 AAW convention. Here, she focused on explaining why scientific study was good for women. Despite the fact that women "[b]etter dig in the earth for gold, than study its rocks for pay," Mitchell encouraged women to study science and practice the rigorous critical thinking required of experimentation and investigation.[55] Eliza Bisbee Duffey, another speaker at the 1876 AAW convention, encouraged women to learn about science and read the works of "Huxley, or Darwin, or Tyndall, or Herbert Spencer."[56] Another

[53] Maria Mitchell, Presidential Address at the third annual AAW convention, "Papers Read at the Third Congress of Women, Syracuse, NY October 13, 14, 15 1875," page 6. Miscellaneous Organizations Collection, box 10, folder 4, SSC.

[54] Ibid.

[55] Maria Mitchell, "The Need of Women in Science," 1876 AAW Annual Congress, 9-10, Miscellaneous Organizations Collection, box 10, folder 4, SSC.

[56] Mrs. E. [Eliza] B. [Bisbee] Duffey, "Women in Literature," 1876 AAW Annual Congress, 50, Miscellaneous Organizations Collection, box 10, folder 4, SSC.

AAW member echoed this sentiment: "If not born into freedom, then women must be liberated by the study of Science. It is arterializing the circulation of modern thought."[57]

Many women heeded the call to learn about science. For example, women flocked to science classes, such as the School of Penikese, the summer institute organized by Louis Agassiz, who opposed Darwinian evolution but encouraged study of the natural world. Of her studies with Agassiz, one woman enthusiastically reported "[b]rains were busy, spirits stirring, hearts full, hands not idle, and every woman felt that scientific truth was as surely hers by right of discovery as though she were a Cuvier or a Humboldt." "The School of Penikese marks an epoch in the higher education of Woman," she went on, "less on account of its real importance or truths taught, than of its influence upon the minds of American educators. Science must emancipate thought and, wherever introduced, revolutionizes. It has aptly been called the 'Iconoclast,' and while the tendency of the classics is to conservatism, the introduction of the sciences may be the catholicon."[58] The revolutionary potential of science appealed to women who were quick to embrace it as an ally in their struggle for expanded opportunities.

The AAW and other women's organizations not only reported enthusiastically on the increased opportunities for women to study science, they also encouraged scientific discussion at their meetings. Sorosis, the parent organization of the AAW, for example, frequently took up scientific topics for debate, such as "Resolved, that the evolution of science tends to lessen Vice and Suffering"; "Can it be scientifically proven that while

[57] Mary Newbury Adams, "The Struggle and Reconciliation of the Ideal and the Practical in America," address delivered at the Third Annual AAW Congress, 1875, 120, Misc. Orgs., SSC.

[58] Graceanna Lewis, "Science for Women," Third AAW Congress, 1875, 28, Misc. Orgs., SSC.

the human race is developing mentally, it is deteriorating physically?"; and "How can modern science be applied to lessen the mental and physical strain of everyday life?"[59] The Report of the Monday Club of Rockford, IL, formed in 1877, reported that the club studied a new subject each year – from Dante to Shakespeare to Roman History—and in "October 1888, it was decided to devote one winter to studying the different theories of evolution, using Le Conte as a text book."[60] The New England Women's Club reported that they had an "unusually agreeable reception for Miss Maria Mitchell" where they discussed scientific topics including the relative intelligence of men and women.[61] *Lists of Books for Girls and Women and their Clubs* devoted an entire section to books on "Natural History and Human Evolution," including works by Darwin, Spencer, George Romanes, Alfred Russel Wallace, and Auguste Weismann.[62]

As a result of their scientific studies, both formal and informal, women's rights advocates incorporated evolution into their rhetoric in a variety of ways. Some declared that women's equality was the next stage in the evolutionary process; others claimed that evolution proved the equivalence or superiority of women; and some argued that evolution necessitated the more equitable division of labor between men and women. An 1892 editorial pointed out that "in the process of human evolution this question of sex,

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[59] The Sorosis records at the Sophia Smith Collection contain cards listing the topics for discussion at meetings. Sorosis Collection, box 5. The dates for these topics are: 2 November 1885; 2 November 1895; and 1 November 1897.

[60] From a bound version of the *Woman's Cycle*, a newspaper that documented the first meeting of the General Federation of Women's Clubs in 1890, Sorosis Collection, clippings folder, SSC.

[61] Report of the Annual Meeting of the New England Women's Club, 31 May 1873 (Boston: Rand, Avery, and Company, 1873), 8. History of Women Collection (HOW), reel 940. The HOW is available at the SLRI and the SSC.

[62] Augusta Leypoldt and George Iles, ed., *Lists of Books for Girls and Women and their Clubs* (Boston: American Library Association, The Library Bureau, 1895), 108-111. Copy residing at the Boston Athenaeum.

and of the right relation of the sexes, has come to the front, and like all problems and questions of mortal life which arise 'in the processes of the suns,' it has come to stay, till in some way, and probably in the best way for human advancement, it shall be settled."[63] Not only did women accept evolution and trust in science, they saw the working out of gender relations as part of the evolutionary process.

Women also embraced evolutionary doctrine because they realized that it liberated them from the legacy of Eve, though most did not go so far as to reject Christianity all together. In 1875, the *Woman's Journal* ran an article announcing that evolution was positive for women. The author, "Claire," enthusiastically reported that a Dr. Holmes had recently suggested that if one accepted Darwinism "[w]omen can no longer be taunted with having brought on humanity the traditional curse." "Is not the idea fraught with the possible promise of a new day for womankind?" she exclaimed. Women would not be able to learn, act, work, or vote on an equal basis until "the time-worn views concerning Woman's connection with the fall of Man, and hence with all human suffering and sin shall cease to be entertained." Evolution promised this "new day for womankind." Claire did not seek to convert readers to either women's rights or evolution but to suggest that the two went hand-in-hand because both beliefs necessitated war with "prejudice" and "bigotry."[64] She lamented that most scientific men ignored, at best, the question of female advancement, but concluded, "[w]ith a sublime faith in the future, that one Utopia of human dreams, we lay aside our doubts and fears and

[63] "The 'One Question in the World,'" *The Woman's Tribune*, 26 November 1892, 234.

[64] Thomas Wentworth Higginson also connected the dismissal of Darwin with a tendency to oppose women's rights. T.W.H., "The Two Camps," *The Woman's Journal*, 19 August, 1882.

perplexities, and rest in the shadow of that rock of reason – the 'survival of the fittest.'"[65] Claire trusted in Darwin's principles because they liberated women from the doctrine of original sin and because they assured her that the fittest women would survive. To Claire, the fittest women were those who maintained their fundamental differences from men yet fulfilled their educational and professional potentials. Not only did personal advancement enhance women, Claire argued, it benefited the future of the race as well.

Claire was not the only woman to see female advancement as part of the evolutionary process. In a statement before the Judiciary Committee of the U.S. House of Representatives, Clara Bewick Colby, a free-thinking ally of Stanton's and the publisher of the radical *Woman's Tribune*, argued that women's suffrage "underlies all the laws of progress." "Now, sirs," she continued, "I make the point that woman suffrage is a philosophy and is in harmony with the evolution of the race, of the nation, and of woman herself."[66] Similarly, in 1893 Carrie Chapman Catt, who was soon to be elected President of NAWSA, delivered an address entitled "Evolution and Woman's Suffrage" at the Congress of Representative Women, held at the World's Columbian Exhibition. In it, she described evolution as "revolutionizing thought in every line of life. It is modifying religious creeds, and political faiths."[67] She believed that evolution proved that life was always progressing according to fixed laws. Catt based her demand for

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[65] Claire, "Woman and Evolution" *The Woman's Journal*, 18 December 1875.

[66] Clara Bewick Colby, statement at the Hearing of the NAWSA, committee on the Judiciary, House of Representatives, Washington, D.C., 28 January 1896. Obtained via the Library of Congress's American Memory Project. www.loc.gov. Darwin himself did not believe that evolution meant constant progress or improvement, but many of his more progressive followers did – this is often referred to as "reform Darwinism."

[67] Carrie Chapman Catt, "Evolution and Woman Suffrage," speech delivered to the Congress of Representative Women, 1893, page 8, 2. Carrie Chapman Catt Collection, New York Public Library.

suffrage on biological sex differences and the claim that many of the nineteenth century's most pressing social problems resulted from an overdevelopment of male traits and an underdevelopment of female ones. But she was hopeful because "evolution, the greatest truth discovered in our century, is on our side." Her application of evolutionary theory to women's suffrage was a bit haphazard and not quite scientifically sound, but it demonstrates the extent to which evolutionary theory offered women hope and a counter narrative to the Bible. To Catt, evolution guaranteed that suffrage would come eventually and that progress for women was inevitable.

Many other progressive thinkers believed that evolution guaranteed improvements in women's status. Frederic A. Hinckley, minister of the Free Religious Society, extolled the recent realization that "Eve was not made from one of Adam's ribs, but both have been evolved out of that Universal whose mysteries we cannot fathom, but which we may be sure knows no subjection of the one to the other, having made of one blood all classes and conditions of men." Not only did evolution challenge women's subordinate status, it also heralded new opportunities for women because "the same logic of evolution concerning the condition of woman, is on the side of, and points with equal clearness to, unqualified individual freedom for her."[68] Similarly, Frederick Clark, an economics professor at Stanford, was inspired by the proceedings at the 1888 International Council of Women to deliver an address entitled "Woman Versus the State" in which he argued that evolution guaranteed women's rights. According to Clark, depriving women of their rights violated the law of natural selection by eliminating some of the "fittest" from the

[68] Frederic A. Hinckley, "Woman Suffrage in the Light of Evolution," (Providence: J.A. and R.A. Reid, 1884), 11-12. Courtesy of Harvard collections on-line.

struggle for survival. "Does sex then give rise to the demarcation [of rights based on gender]? Not if the analogy to nature and the laws of evolution are true in human society," declared Clark. "It is a law of 'unnatural' selection that marks off one-half of the self-conscious cells of human society, and forms a government to secure and perpetuate rights." His faith in evolution assured Clarke that women's suffrage was "sure to come as is the earth to roll around on its axis."[69] Women and sympathetic men took solace in the knowledge that major changes did happen over time. If humans could evolve from apes, surely, then, men could be persuaded to grant women more rights. After all, it was only natural.[70]

In light of evolution, some women abandoned the biblical account of creation altogether; others, like lawyer and suffrage advocate Catherine Waugh McCulloch, applied evolutionary principles to the Genesis creation story. In a pamphlet entitled "The Bible on Women Voting," McCulloch reasoned:

> [t]he scientists of today quite agree with the Genesis parable concerning the creation; that creation was in the ascending scale, first the lower creatures, then

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[69] Frederick C. Clark, "Woman versus the State, an address delivered before the Century Club of San Francisco," 18 January 1893 (Ann Arbor: The Register Publishing Company, 1893), 5, 18. Available through the Gerritsen Collection of Women's History on-line.

[70] Other pro-suffrage tracts that relied on evolutionary language and principles include: "The Weaker Sex," *Revolution* 5, 10 February 1870, 91; Henry Blackwell, "The Physiological Argument," *Woman's Journal* 7, 12 February 1876, 52; Thomas Higginson, "Sex in Mind," *Woman's Journal* 5, 12 December 1874. Also, Antoinette Brown Blackwell delivered a speech entitled "Evolution Applied to the Woman Question" at the 1874 NWSA convention in Washington, D.C. Unfortunately, I have been unable to locate a copy. In a speech entitled "Complete Freedom for Women," Miss Agnes M. Manning provided a history of women's subjugation at the hands of organized religion, the Biblical portrayal of women, and patriarchy. Then, she pointed hopefully to recent developments such as "[t]he distinguished president of Stanford University, in his lecture on sex, as it is treated from a scientific standpoint, shows how the old theories [of gender] are exploded. Alas, how much of the story of the sufferings of women may be traced to this subject [biblical and religious views of womanhood/motherhood]?" reprinted in *The Congress of Women*: *Held in the Woman's Building, World's Columbian Exposition, Chicago, U. S. A., 1893, With Portraits, Biographies and Addresses* ed. Mary Kavanaugh Oldham Eagle (Chicago: Monarch Book Company, 1894), 110. The speech Manning refereed to was most likely "The Meaning of Sex" by David Starr Jordan.

> the higher animals, then man, and last at the apex the more complex woman. The order of creation affords no argument why women should obey men, though Paul in I Tim. 2:13 so seems to regard it. It might rather be a reason why men should obey women.[71]

In combining the biblical and evolutionary accounts of creation, McCulloch found evidence for female superiority. Emily Oliver Gibbes echoed this sentiment in *The Origin of Sin and Dotted Words in the Hebrew Bible* (1893). Here, she took St. Paul to task for interpreting Genesis literally and taking pride "in the fact that Adam was first formed, then Eve." "In these days of belief in evolution it is the other way," Gibbes proclaimed. "If Eve evolved from Adam, she was higher than man in the plane."[72] These two women blended the Christian creation story with evolution and read this hybrid version as proof that Eve did not bequeath inferiority to women, but, rather, heralded female superiority.

While normally on the side of gender equivalence, if pressed, Antoinette Blackwell also admitted that evolution provided evidence of female superiority. At the 1884 annual meeting of the American Association for the Advancement of Science, she delivered a well-received paper on "The Comparative Longevity of the Sexes." She turned the evolutionary principle of the "survival of the fittest," a process described by Darwin but named by Spencer, on its head by arguing that since women generally lived longer than men, they must be the fittest. She explained to her audience, "[i]nstead of inferring that woman has been placed at a disadvantage in the race of life, when the

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[71] Catherine Waugh McCulloch, "The Bible on Women Voting," no date, no publication information, page 4, Suffrage College, box 3, folder 6, SSC.

[72] Emily Oliver Gibbes, *The Origin of Sin and Dotted Words in the Hebrew Bible* (New York: Charles T. Dillingham, 1893), 127-128. HOW.

subject has been brought into the domain of exact science, as it readily can be in certain directions, it may be found that she has various calculable and definite advantages over man, her now demonstrated superior longevity being one case in point."

As Blackwell charged in *The Sexes Throughout Nature*, Darwin considered the male in all species the norm, and the female the deviant. Given an instance which might upset that view, he jumped through rhetorical, and sometimes logical, hoops to prove the opposite. For example, in writing about the relative longevity of the sexes, Darwin explained that men were more likely to die earlier because they were the main players in the struggle for existence and, thus, exposed to more harm. The fact that women lived longer and were less prone to die during adolescence could also have been interpreted as evidence of some superior female traits. Darwin's ingrained Victorianism prevented him from seeing this, but his theory enabled others to. Blackwell was keen to the distinction between women's traits and how they had been interpreted by male scientists. She explored other possible explanations for women's greater longevity than those offered by Darwin in her 1884 address. She compared census data from across the globe and presented her findings that "at every period of life the female has the slightly better chance of survival." She then coyly added, "I did not say 'survival of the fittest. That phrase originates with Mr. Spencer."[73] According to Blackwell, what accounted for the greater longevity of women were the extra advantages that nature had given to the sex primarily responsible for the survival of offspring. Moreover, she encouraged her

[73] Antoinette Brown Blackwell, "The Comparative Longevity of the Sexes," paper delivered at 1884 AAAS Convention, p. 2, 17. Copy of program at the Center for the History of Medicine of the Countway Library of Medicine, Harvard Medical School, Boston, Massachusetts (hereafter CHM). The *Woman's Tribune* printed a notice of Blackwell's address in their December 1884 edition, no page.

audience to reconsider the value system inherent in Darwin's world of courageous, competitive men, using the methods and language that Darwin himself made standard. Just as previous women found feminist loopholes in the Bible, women in the second half of the 19th century separated evolutionary principles from sexist science and drew on evolutionary insights to buttress their ideas about women's nature.

One evolutionary insight that women frequently drew upon was to look to the animal kingdom for insights regarding humans. Such a comparative vantage point was a powerful tool for women because it displaced man as the standard bearer -- he became simply one type of organism. "To assume man as the standard would be obviously absurd," concluded Dr. Emily White. "For he is as distinctively differentiated as is woman, and it is impossible for a scientific imagination to conceive of a common type of the human species excluding the idea of sex."[74] Women's exclusion from productive labor stood out as a peculiarly human construct. As freethinking feminist Helen Hamilton Gardener explained, "nowhere in all nature is the mere fact of sex – and that the race producing sex – made a reason for fixed inequality of liberty, of subjugation, of insubordination, and of determined inferiority of opportunity in education, in acquirement, in position – in a word, in freedom. Nowhere until we reach, man!"[75] Studying the animal kingdom showed women that men were not the norm, and that nineteenth-century gender relations were anything but natural.

[74] Frances Emily White, "A Reply to Miss Hardaker on the Woman Question," *Popular Science Monthly* 22 (May 1882): 293. Hereafter PSM.

[75] Helen Hamilton Gardener, "Woman as an Annex" reprinted in Gardener, *Facts and Fictions of Life* (Boston: Arena Publishing, 1895), 132.

Women's enthusiasm for evolutionary science caused some to mistakenly believe that the feeling was mutual. Women suffragists invited Joseph Le Conte to speak at their 1895 conference in San Francisco. Le Conte, a well-known evolutionist and lukewarm supporter of women's education, did not support the vote for women and believed, along with most other male evolutionists, that the more a species advanced, the more the sexes differentiated.[76] For women, this differentiation meant increasing confinement to reproductive processes. At the suffrage conference, he spoke for two hours about the distinct roles organic evolution established for males and females and left his audience to draw their own conclusions about the ramifications for woman's suffrage.

Most other male evolutionists were not as guarded as Le Conte in expressing their belief in women's inferiority in "scientific terms."[77] As has been well documented by Cynthia Eagle Russett and others, "scientific" explanations of female inferiority were a hallmark of late nineteenth-century science and medicine and often provided the basis for opposition to women's rights.[78] Professor Edward Drinker Cope epitomized this line of

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[76] Lester Stephens, "Evolution and Woman's Rights in the 1890's: The Views of Joseph LeConte" *Historian* 38:2 (February 1976): 239-252.

[77] These arguments will be discussed in greater detail in chapter 2.

[78] The examples of anti-suffragists using evolutionary language are legion. For example, see Mrs. William Forse Scott, "Woman's Relation to Government," pamphlet issued by the New York State Association Opposed to Woman Suffrage (New York: North American Review Publishing Company, 1903), 5-8; Prestonia Mann Martin "An Anti-Suffragist's Reply to Mr. Bryan's Reasons for Advocating Woman Suffrage" (New York: The National Association Opposed to Woman Suffrage, 1911), 1-2; "Statement of Miss Phoebe W. Couzins, LL.B. in Opposition to Woman Suffrage," reprinted in *Anti-Suffragist* (June 1910): 3; "Biology and 'Woman's Rights,'" reprinted from *Quarterly Journal of Science, PSM* 14 (December 1878): 201-213; W.K. Brooks, "The Condition of Women from a Zoological Point of View," PSM 15 (June 1879): 145-155. For an excellent compilation of articles on the woman question published in *Popular Science Monthly*, see Louise Michele Newman, ed. *Men's Ideas, Women's Realities: Popular Science, 1870-1915*, The Athene Series (New York: Pergamon Press, 1985). The evolutionary arguments against women's rights have been expertly analyzed by Cynthia Russett in *Sexual Science;* Susan Sleeth Mosedale, "Science Corrupted: Victorian Biologists Consider 'The Woman Question,'" *Journal of the History of Biology* 11 (Spring 1978): 1-55; and Janice Law Trecker, "Sex, Science and Education," *American Quarterly* 26 (October 1974): 352-366.

argument in his article, "The Relation of the Sexes to Government" in which he argued that women's suffrage would preclude evolutionary advancement:

> The first thought that strikes us in considering the woman suffrage movement is, that it is a proposition to engage women once more in that 'struggle' from which civilization has enabled them in great measure to escape; and that its effect, if long continued and fairly tried, will be to check the development of women as such, and to bring to bear on her influences of a kind different from those which have been hitherto active.[79]

Cope believed that women's exclusion from productive labor and active citizenship indicated and enabled evolutionary advancement, and, thus, he feared that granting women's suffrage would be at cross purposes with evolutionary progress. His firm belief in biological determinism also led Cope to define suffrage as a privilege for the well qualified, not a right for all. "What America needs," he proposed, "is not an extension, but a restriction of the suffrage."[80] On this, a growing number of suffragists agreed.

The widespread evolutionary belief that sex differentiation indicated racial progress buttressed a shift in women's rights rhetoric from advocating universal suffrage to focusing on suffrage for educated white women. While the tension between women's rights and African American rights dated back to the battles over the 14th and 15th amendments in the 1860's, evolutionary rhetoric provided a seemingly scientific rationale for a race-based hierarchy of civilization – from savage to civilized – which enabled women like Stanton and Anthony, who had felt cheated by the passage of the amendments, to separate the concerns of educated white women from those of African

[79] Professor Edward D. Cope, "The Relation of the Sexes to Government," PSM 33 (October 1888): 725. For a response to Cope, see Frank Cramer, "The Extension of the Suffrage to Women," PSM 34 (January 1889): 415. Cope replied, see "Woman Suffrage," PSM 34 (February 1889): 558-559.

[80] Cope, "The Relation," 730.

American women and other disenfranchised people. Thus, the women most influenced by Darwin were often those most likely to advocate for educated (white) suffrage as opposed to universal suffrage because they believed that their race, not their gender, should determine their place in the evolutionary schema.

In the 1880s and 1890s, an influential sect of women's rights activists, led by Stanton and Helen Hamilton Gardener, increasingly sought to align themselves with their educated white male peers. They claimed the ties of education and civilization (often code words for race) gave them more in common with white men than with other women and that the privilege of voting should belong to those most likely to exercise suffrage responsibly, the educated and the intelligent.[81] Concerned that suffrage for all women would "double the ignorant vote," Stanton instead pursued the vote for women like herself.[82] As historian Louise Michele Newman has expertly documented, white racism was foundational to the development of feminist thought in the U.S. Evolution provided the "scientific" justification for this latent tendency in the women's movement, just as it buttressed the related shift from equality to equivalence. It also inspired the freethinking women who attempted to revolutionize feminist discourse at the end of the nineteenth century.

[81] See Kern, *Mrs. Stanton's Bible*, 114-116 for an excellent discussion of the educated suffrage movement. See also, Louise Michele Newman, *White Women's Rights: The Racial Origins of Feminism in the United States* (New York: Oxford University Press, 1999) for an extended study of the racism within the women's movement and its relation to evolutionary discourse.

[82] *Woman's Tribune*, 23 March 1889; quoted in Kern, 115, n. 79.

Evolution, Freethought, and the *Woman's Bible*

As suffragists and women's club members integrated, interrogated, and reflected the pervasive influence of evolutionary theory at the end of the nineteenth century, evolution also impacted the women's rights movement in a less direct manner by forcing women's rights advocates to define the place of religion in the movement. Mainstream women's rights advocates, like Carrie Chapman Catt, were more likely to accommodate their liberal Christian beliefs to accord with evolution, whereas a few radicals, led by Elizabeth Cady Stanton, believed that evolution substantiated their lifelong skepticism of orthodox religion and moved into freethought circles. The widespread acceptance of Darwinian evolution propelled freethought from the fringes of respectability to the mainstream. According to Susan Jacoby, who has written an authoritative book on freethought in the U.S., 1875-1914 was the Golden Age of the movement, largely because evolution gave credence to its main claims.[83] Throughout the 1870s and 1880s, the most popular speaker on the lecture circuit was Robert Ingersoll, the charismatic leader of the American freethought movement, known as the "great agnostic." Freethought, Jacoby argues, was especially influential on those individuals, including Harvard president Charles Eliot Norton and women's rights leaders Stanton, Susan B.

[83] Susan Jacoby, *Freethinkers: A History of American Secularism* (New York: Metropolitan Books, 2004), 1, 144. See especially chapters 5 and 6 on the role of evolution in freethought and on the Golden Age of freethought in the U.S., respectively. Jacoby discusses the role of freethought in the antebellum women's rights movement (chapter 3) and in the late nineteenth century, 194-205. She contends that Stanton's freethinking agnosticism was the main reason for both her radical views on gender and her increasing alienation from mainstream suffragists who were both conventionally religious and focused on the vote. Jacoby also argues that because of its heretical basis, the freethought movement and its adherents have largely been written out of American history, a claim that definitely holds true among freethought feminists. For an anthology of work by freethinking women, see Annie Laurie Gaylor, ed., *Women Without Superstition "No Gods – No Masters": The Collected Writings of Women Freethinkers of the Nineteenth and Twentieth Centuries* (Madison: Freedom from Religion Foundation, 1997).

Anthony, and Matilda Joslyn Gage, "who moved from liberal Protestantism to outright agnosticism."[84] Evolution provided a boon in adherents and respectability to the freethought movement which, in turn, helped spread innovative ideas on gender and provided crucial forums in which freethinking women could publish and speak as the women's rights movement contracted to focus on the vote.

Recently, a number of books have analyzed the growth of spiritualism and other alternative religions during the late nineteenth century and the role these new faiths played in women's lives and in the development of American feminism, but the influence of freethought – both in general and in relation to women's rights specifically – has largely been elided from the history of the United States.[85] Until feminist scholars rediscovered her in the 1980s, Stanton, the woman who first demanded the right to vote, had been virtually written out of the history of the women's rights movement because of her outspoken agnosticism and anticlericalism. As Jacoby maintains, "[while] Stanton has been restored to history, the essential role of agnostics in the women's rights

[84] Jacoby, *Freethinkers*, 144.

[85] A number of excellent studies have looked at the impact of spiritualism and other new religions on women including, Ann Braude, *Radical Spirits: Spiritualism and Women's Rights in Nineteenth-Century America* (Boston: Beacon Press, 1989); Catherine Tumber, *American Feminism and the Birth of New Age Spirituality: Searching for the Higher Self, 1875-1915,* American Intellectual Culture Series, (Lanham: Rowman and Littlefield, 2002); and Beryl Satter, *Each Mind a Kingdom: American Women, Sexual Purity, and the New Thought Movement, 1875-1920* (Berkeley: University of California Press, 1999). Spiritualism received a big endorsement from Alfred Russel Wallace, the scientist and co-discoverer with Darwin of natural selection. Wallace believed in spiritualism and it was his brand of evolution that the theosophists, including Madame Blavatsky, adopted. He also supported women's suffrage and women's movement people generally liked him. He is just one example of the links between evolution and spiritualism/theosophy and women's rights. According to Jacoby one of the hardest things for an agnostic evolutionist to deal with was the certainty of death amid the uncertainty of God. "[M]any freethinkers, not surprisingly, found themselves unable to face those losses without the hope that some form of consciousness might continue after death" (145). Many turned to spiritualism; except Ingersoll who was one of the rare few who remained without god till the end.

movement has never been acknowledged."[86] Similarly, despite her popularity on the lecture circuit and her critical role in securing the passage of the nineteenth amendment, Helen Hamilton Gardener is hardly mentioned in the history of suffrage, and, on the few occasions when she is, her background in the freethought movement is obscured or omitted.[87]

As she was ostracized from mainstream women's rights circles in the 1880s and 1890s for making statements considered radical, Stanton published more and more of her work in freethought journals. She became close friends with Robert Ingersoll and his wife (he served as the chairman of the Elizabeth Cady Stanton Centennial Luncheon in 1915) and found a soul mate in fellow freethinker, Helen Hamilton Gardener. Stanton also befriended Benjamin Franklin Underwood and his wife Sara. The Underwoods popularized Darwin in the U.S. and published the freethought periodicals the *Index* and *Open Court*.[88] Unlike the women's movement, the freethought movement welcomed critiques of marriage, traditional gender roles, and the Bible, thus it provided an ideal outlet for Stanton who was frustrated by continually having to debate clergymen and her more conservative peers.[89] In this way, evolution fueled the schism between the "suffrage-only" camp and the "gender radicals" by offering new ways of thinking about

[86] Jacoby, *Freethinkers,* 204.

[87] This is an omission I hope to rectify. I am currently working on a biography of Gardener. In the 1910s Gardener became a vice president of NAWSA and members fondly referred to her as their "diplomatic corps" because of her close relationships with key members of congress.

[88] Kern, *Mrs. Stanton's Bible*, 64. See also Jacoby, *Freethinkers*, 102-103, 146.

[89] For an excellent study of antebellum freethought and the long shadow cast on female freethinkers by the notorious Frances Wright, see Lori D. Ginzberg "'The Hearts of Your Readers will Shudder': Fanny Wright, Infidelity, and American Freethought," *American Quarterly* 46 (June 1994): 195-226.

gender, forcing a discussion about the role of Christianity in women's rights, and bolstering the freethought movement, which offered radicals like Stanton a new home.

Stanton, a capacious thinker and iconoclast, found herself and her ideas becoming anathema to women who could see suffrage on the horizon and who did not want to diminish their chances of attaining the vote by being associated with someone who insisted on denigrating marriage and proselytizing that organized religion was built upon the oppression of women. In the 1848 Declaration of Sentiments, largely written by Stanton, one can see both the influence of natural rights rhetoric and her revolutionary plan for gender equality in all spheres. In this historic document, Stanton called for equality in education, the professions, and the home, in addition to the vote. Over the years, of course, her ideas shifted and changed, but her focus on the root causes of women's oppression never wavered. Stanton's growing frustration with religious explanations of gender difference manifested itself in numerous articles in the *Revolution* and, later, the *Woman's Tribune* through which she honed in on the Bible as the source of women's degradation.[90]

Stanton had been writing anticlerical pieces and stirring up religious controversies within the women's rights movement since the 1850s, but in the 1880s and 1890s she wielded her powerful pen for the singular purpose of dismantling literalist beliefs in the

[90] After the collapse of the *Revolution*, the *Woman's Tribune* became the unofficial organ of the NWSA, while the *Woman's Journal* was the newspaper of record for the AWSA and later the reunified National American Woman Suffrage Association (NAWSA). The *Woman's Tribune* was very much influenced by Stanton and it reflected her broad interests; *The Woman's Journal* mainly printed articles pertaining to suffrage. The *Tribune* was published and edited by Stanton ally and *Woman's Bible* revising committee member Clara Bewick Colby. For a detailed history of the women's rights press, see Martha Solomon, ed., *A Voice of their Own: The Woman Suffrage Press, 1840-1910* (Tuscaloosa: University of Alabama Press, 1991).

Bible and convincing women that the church did not have their best interests at heart. For example, in an article published in the freethought and pro-birth control newspaper *Lucifer the Light-bearer*, Stanton wrote:

> The rulers in the church are hostile to liberty for a sex supposed for wise purposes to have been subordinated to man by divine decree. The equality of woman as a factor in religious organizations would compel an entire change in church canons, discipline, and authority, and many doctrines of the Christian faith. As a matter of self-preservation, the Church has no interest in the emancipation of woman, as its very existence depends on her blind faith.[91]

Such arguments were warmly received within the freethought press, but they further distanced her from the, by then, mainstream women's suffrage movement.

Central to her critique of patriarchal religion was the time Stanton spent in Europe in the early 1880s recovering from the strain of publishing volume two of *The History of Woman Suffrage* and visiting her children, Harriot Stanton Blatch (Harriot married William Henry Blatch in 1882 and settled in England) and Theodore Stanton who lived in France.[92] During this time, she luxuriated in the cosmopolitan secularism of Europe, read evolutionary theory, and became convinced that suffrage would not elevate women unless they also freed themselves from the belief that Eve caused the fall of humanity and accepted that organized religion was predicated on their oppression.[93] While in London, Stanton confided in her diary that she had "dipped into Darwin's *Descent of Man* and

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[91] Elizabeth Cady Stanton, "Woman and the Church," *Lucifer the Light-bearer*, 17 July 291(this newspaper did not abide by the Christian calendar, so 291 corresponds to 1891). SSC.

[92] Kern, *Mrs. Stanton's Bible*, 50.

[93] For a more detailed analysis of Stanton's time in England and France in the early 1880s, see Kern, *Mrs. Stanton's Bible*, 50-71. Kern has written the definitive account of the history, publication, and significance of *The Woman's Bible*. In introductions to reprints of the *Woman's Bible*, two other scholars have also analyzed it: see Barbara Welter's introduction to *The Original Feminist Attack on the Bible* (New York: Arno, 1974) and Maureen Fitzgerald's foreword to *The Woman's Bible* (Boston: Northeastern University Press, 1993). For Banner's take on Stanton's time abroad in the early 1880s, see Banner, *Elizabeth Cady Stanton*, 166-167.

Spencer's *First Principles,* which have cleared up many of my ideas on theology and left me more than ever reconciled to rest with many debatable ideas relegated to the unknown."[94] Or, as she wrote her cousin, Elizabeth Smith Miller, "Admit Darwin's theory of evolution and the whole orthodox system topples to the ground; if there was no Fall, there was no need of a Savior, and the atonement, regeneration and salvation have no significance whatever."[95] Evolutionary theory confirmed Stanton's lifelong skepticism and provided her with the confidence to take on the Bible directly.

In 1883, the Reverend Moncure Conway, a fellow American freethinker living in London, invited Stanton to address his congregation. Her theme was "What has Christianity done for Woman?" The answer, put simply, was not much. Stanton marshaled "the facts of history" to prove that all religions "have taught [woman] her inferiority and subjection."[96] She enjoyed this speech more than any other she had ever given and felt "a sense of relief in pouring out my indignation."[97] On another occasion in England, Stanton was invited to address a Methodist congregation on the Bible and woman's suffrage. Using Genesis I verses 27-28 as her text, she delivered a powerful sermon about the limits of biblical authority. She relished the opportunity and wrote in her diary:

> It was plain that the congregation was pleased, especially the women, who were evidently glad to learn that man and woman were a simultaneous creation, that Eve was not an unfortunate afterthought, and that the curse was not a direct fiat

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[94] Theodore Stanton and Harriot Stanton Blatch, ed., *Elizabeth Cady Stanton As Revealed in her Letters, Diary, and Reminiscences*, Volume Two (New York: Harper and Brothers, 1922), 198. Diary entry is from November 25, 1882. This passage is also quoted in Kern, 68-69, n. 68.

[95] Stanton to Elizabeth Smith Miller, 5 March 1887, Theodore Stanton Collection, Elizabeth Cady Stanton Papers, Rutgers University Libraries, New Brunswick, New Jersey; quoted in Kern, 69, n. 69.

[96] Elizabeth Cady Stanton, *Eighty Years and More* (London: T. Fisher Unwin, 1898), 357.

[97] Ibid., 356. See also *Stanton as Revealed*, 209.

> from heaven, but the result of violated law, to be got rid of by observing the rules of life.[98]

Ever flexible, Stanton could embrace biblical passages that bolstered her cause while at the same time denouncing biblical literalism. Emboldened by her study of evolution (presumably the "rules of life" to which Stanton alluded), her speeches against orthodoxy, and her time among European freethinkers, Stanton returned to the States determined to reveal the male bias at the heart of organized Christianity.

She hoped to accomplish this goal through the publication of a feminist critique of the Bible, a project she conceived of in the 1880s and published in the 1890s. Stanton explained the impetus for what became the *Woman's Bible* in an article published in the freethought newspaper *The Index*:

> [b]elieving that the source and centre of woman's degradation is in the religious idea of her uncleanliness and depravity, as set forth in innumerable reiterations in the Old Testament. . . the committee feel it to be their conscientious duty to investigate the authenticity of the Scriptures. If convinced that they emanate from the customs and opinions of a barbarous age, and have no significance in the civilization of the 19th century, they hope to free women from the bondage of the old theologies, by showing that the Bible rests simply on the authority of man, and that its teachings are unfit for this stage of evolution in which the sexes occupy an equal place in the world of thought.[99]

Evolution freed Stanton to interpret the Bible as allegory, parable, and metaphor because it was definitive proof of the limits of biblical authority.

In evolutionary science, Stanton also saw a welcome refuge from her lifelong struggles with the clergy who since the 1840's, with a few exceptions, sought to ban her from their doors, dispute her right to speak, and obstruct her progress at every turn.

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[98] Stanton and Blatch, *Stanton As Revealed*, diary entry 21 May 1883, 206-207.
[99] Elizabeth Cady Stanton, "The Woman's Bible," *The Index*, 19 August, 1886, 87.

Given this history, one can see why she was so enthusiastic about evolution. Furthermore, in her turn from natural rights, one can see Stanton's frustration with the failure of her decades-long efforts to secure universal rights for men and women, black and white, only to be told that natural rights only applied to men. Unlike Blackwell and Gardener, Stanton was no student of science or evolution, though she was certainly familiar with the main ideas; to her, scientific expertise was not the point. Stanton trusted in science's commitment to reason, evidence, and objectivity. Just as reading Darwin and Spencer precipitated a crisis of faith for Rev. Antoinette Brown Blackwell, evolution led Stanton to freethought and convinced her she needed to rescue Eve, and her daughters, from Eden once and for all. Instead of rehashing the same old passages and well-worn clerical objections to women's rights, evolution allowed Stanton to dismiss the Bible altogether and declare it not the word of God, but the fallible, misogynistic words of men.

Indeed, it is hard to imagine that Stanton could have conceived of the *Woman's Bible* were it not for the pervasive influence of evolutionary theory and the slew of biblical commentaries and discussion that sprung up in its wake. As women's rights advocate Edward Pollard wrote "[t]here was a time when the Bible was regarded as an authority in science also . . . But no intelligent person today regards the Bible as speaking authoritatively on points of science, nor was ever intended to do so."[100] In the 1880s and 1890s, there was a barrage of revised Bibles and biblical commentaries, most notably the Revised New Testament which was published in 1881. In fact, Stanton claimed it was

[100] Edward Pollard, "Subjection of Women According to St. Paul," no date, 3. Suffrage Collection, SSC. Pollard argued that evolution not revolution would bring about women's emancipation. Kraditor analyzes the impact of biblical criticism on suffrage, see *Ideas*, 64-65.

the lack of revision in this New Testament (the changes were mostly grammatical, and the revisers were mostly conservative) that prompted her to write the *Woman's Bible*.[101] According to historian Kathi Kern, who has written an excellent history of the *Woman's Bible*, Stanton intended her critique of the Bible to go along with these other biblical commentaries. In addition to Stanton, several other women critiqued the patriarchal basis of organized religion, but none were so bold as to actually rewrite the Bible from a feminist perspective.[102]

Stanton's single-minded focus on women's place in the Bible was also a response to conservatives' efforts in the mid-1880s to lobby Congress to declare Christianity the official religion of the United States, enforce Sunday closing laws, teach Protestantism in schools, increase the presence of religion at suffrage events, and reinstate Eve as the gender role for women.[103] As evolution undermined biblical literalism, opponents attempted to shore up faith in the Bible by calling on Genesis to defend traditional gender roles. As Kern argues, "the cultural anxieties generated by challenges to Christianity [in

[101] Kern, *Mrs. Stanton's Bible*, 71.

[102] See for example, Matilda Joslyn Gage, *Woman, Church and State: The Original Exposé of Male Collaboration Against the Female Sex* (Chicago: C. H. Kerr, 1893, reprint, Watertown: Persephone Press, 1980); Emily Oliver Gibbes, *The Origin of Sin and Dotted Words in the Hebrew Bible* (New York: Charles T. Dillingham, 1893); and Eliza Burt Gamble, *The God-Idea of the Ancients, or Sex in Religion (*New York: Putnam, 1897). Matilda Joslyn Gage also published frequently in the *Index*. One article in particular stands out for its emphasis on Judeo-Christian texts as the root of women's subordination and science as their saving grace. In "The Church, Science, and Woman," Gage sought to establish the teachings of Judaism and Christianity as foundational to patriarchy as well as law and government. In contrast to Christian orthodoxy, she pointed to "the investigations of modern science [which] prove the falsehood of church hypothesis and teachings, showing the feminine everywhere to hold rank in nature, and female life to be the result of a higher physical condition than male life, the latter being due to impoverished or less worthy blood." For evidence, she cited recent studies of the development of sex in fetus that point to the environment and nutrition as "the two great factors in determining sex." She took this to be evidence that "[n]ature, when at her best, seems constantly striving for the production of the feminine." *The Index*, 29 April 1886. According to Kern, Gage thought she was going to share the copyright for the *Woman's Bible* with Stanton and was surprised when Stanton applied using only her name (Kern 169-170).

[103] Banner, *Elizabeth Cady Stanton*, 161.

the late 1800s] were frequently expressed in gendered terms." To strengthen the "emasculated gospel," Kern contends, evangelicals called upon the Gospel of Paul and his assertion that Eve's conduct in Genesis fixed woman's status in the Bible and thereafter. Emphasizing her creation as an afterthought and her sinful behavior in the Garden of Eden, nineteenth- century ministers "championed the 'rib' story" to settle the woman question, as well as simultaneously bolster biblical adherents whose faith might have waned as a result of Darwin's publications.[104] At the end of the nineteenth century, Eve reappeared on the frontlines of debates about gender.[105]

The "masculinity crisis" of the late nineteenth century has been well-documented and was a result of many factors, including mass immigration, the close of the frontier, American imperialism, and economic depression.[106] But it was also a response to the challenges evolution posed to traditional ideas about gender, as evidenced by the

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[104] Kern, *Mrs. Stanton's Bible*, 78-79.

[105] For a discussion of how Eve shaped male attitudes toward women in the first half of the nineteenth century, see E. Anthony Rotundo, *American Manhood: Transformations in Masculinity from the Revolution to the Modern Era* (New York: Basic Books, 1993), 104-107, 133.

[106] For other books on masculinity, see for example: Gail Bederman, *Manliness and Civilization: A Cultural History of Gender and Race In the United States, 1880-1917*, Women in Culture and Society Series, ed. Catherine R. Stimpson (Chicago: University of Chicago Press, 1995); Michael S. Kimmel, *Manhood in America: A Cultural History* (New York: Free Press, 1996) and *The History of Men: Essays in the History of American and British Masculinities* (Albany: State University of New York Press, 2005); and John F. Kasson, *Houdini, Tarzan, and the Perfect Man: The White Male Body and the Challenge of Modernity in America* (New York: Hill and Wang, 2001). In the *History of Men*, Kimmel discusses the "strongly misogynist current" that ran through religious tracts at the end of the nineteenth century as well as the turn to "muscular Christianity," though he does not attribute either to the rise of Darwinism, 77-78. For muscular Christianity in particular, see Clifford Putney, *Muscular Christianity: Manhood and Sports in Protestant America*, 1880-1920 (Cambridge: Harvard University Press, 2001). Putney does not discuss these changes in relation to Darwinism either, though I believe that Darwinism was central to this revivified attempt to claim Adam and Eve as the true models for men and women. See also Gail Bederman, "The Women Have Had Charge of the Church Work Long Enough': The Men and Religion Forward Movement of 1911-1912 and the Masculinization of Middle-Class Protestantism," *American Quarterly* 41 (September 1989): 432-465. See also David Morgan, *Visual Piety: A History and Theory of Popular Religious Images* (Berkeley: University of California Press, 1998), especially chapter three "The Masculinity of Christ" about how images of Christ also changed to reflect nineteenth century ideals of men.

revivified attempts to restore Adam and Eve as the definitive models for gendered behavior. As former President Grover Cleveland wrote:

> Those who. . [seek] to protect the old and natural order of things as they relate to women reverently appeal to the division of Divine purpose clearly shown when Adam was put in the Garden of Eden to dress it and keep it, and Eve was given to him as a helpmeet and because it was not good that man should be alone. . . they. . . fortify their position by referring to the fact that, as part of the punishment visited upon their first parents for their disobedience, it was decreed that in the sweat of his face should the man eat bread, and in sorrow should the woman bring forth children.[107]

During such confusing times, President Cleveland sought comfort in the traditional gender roles outlined in the Bible. He was not alone. In his 1885 pamphlet "Common Sense as to Woman Suffrage" the Reverend Henry Dexter, too, relied upon Adam and Eve to prove that not only was the Bible against woman suffrage, it also demanded woman's permanent subordination:

> When God came to pronounce judgment for the first sin, he said to the woman who had led off in transgression, 'The determination of they will shall be yielded to they husband, and, accordingly, he shall rule over thee.' Now it is quite needless to inquire in what degree the consequences of this may be removed by redemption, inasmuch as we have seen that the original unit was the first man, and that the conception of a certain inferiority, secondariness, and subordination entered into the fundamental and unfallen idea of the helpfulness of woman to man; which no subsequent fall, or rising again, can reasonably be expected to modify.[108]

To Reverend Dexter and many others, Eve served as a powerful metanonym and exemplar for all women, many of whom were chafing at their biblically ordained status.

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[107] Grover Cleveland, "Woman's Mission and Woman's Clubs," Ladies Home Journal XXII (May 1905): 3. Quoted in Aileen S. Kraditor, *The Ideas of the Women's Suffrage Movement, 1890-1920* (Garden City: Double Day, 1971), 13, n. 4.

[108] Henry Dexter, "Common Sense as to Woman Suffrage" (Boston: W.L. Greene and Company, 1885), 30. Suffrage Collection, SSC.

The reappearance of Eve deeply concerned Stanton, who referred to the "rib" story as the "allegory that all the enemies of women rest their battering rams, to prove her inferiority."[109] Buttressed by her faith in science, her supportive community within freethought circles, and evolution's refutation of the very existence of the Garden of Eden, Stanton dismissed attempts to circumscribe women's behavior based on Eve's misconduct and subsequent curse. As she wrote in *Lucifer the Light-bearer*:

> What would be the tragedy in the garden of Eden to a generation of scientific women? Instead of patiently trying to fathom the supposed spiritual significance of the serpent as the representative of Satan, and all the tergiversations involved in his communications with Eve, hers with Adam, and his with the Lord, and the final catastrophe, turned into the great unexplored wilderness, naked and helpless, to meet the terrible emergencies of the situation; instead of pondering over all this in sorrow for the downfall of the race they would relegate the allegory to the same class of literature as Aesop's fables.[110]

Stanton hoped to foster this "generation of scientific women" through her *Woman's Bible*.

Furthermore, Stanton used evolutionary principles to challenge ministers who clung to the story of Adam and Eve. She accused a Dr. Parkhurst, who published a sermon about the creation of woman, of confusing the two versions of creation in Genesis (one describes men and women as simultaneous creations, the other states that Eve was crafted from Adam's rib) and favoring the one that lacked scientific evidence. Instead, she maintained that the accurate version could be found in Genesis 1: 27-28 because it explained that men and women came into existence together and was, therefore, "in

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[109] Elizabeth Cady Stanton, *The Woman's Bible, parts I and II*, reprinted through the American Women: Images and Realities series (New York: Arno Press, 1972), 20. *The Woman's Bible* was initially published in two parts; volume one in 1895 and volume two in 1898.

[110] Stanton, "Woman and the Church."

harmony with science." She went on to echo the sentiments of Catherine McCulloch and Emily Oliver Gibbes, quoted earlier in this chapter, and asked if in fact woman was created after man, according to the laws of evolution, should his place "be one of subjection?"[111]

One preacher in particular earned the ire of Stanton and other freethinking feminists, the Reverend Morgan Dix. In 1883, Dix, the rector of Trinity College and a leader at Columbia University in New York, delivered a series of Lenten lectures about women's place in life, later reprinted as "The Calling of a Christian Woman and her Training to Fulfill It." These lectures demonstrated the centrality of Eve to the woman question in the 1880s. In response to the great anxiety caused by women's efforts to gain admittance to Columbia, Dix expounded on the biblical message of women's inferiority as established by Eve. As a man of the cloth, he claimed that he spoke not for himself alone but on behalf of God:

> But here, at once, we affirm -- not *I*, it is not merely my opinions-- but *we*, God's messengers and witnesses, ordained and sworn to teach, not our own opinions, but the faith of the Church, affirm that fact, of the distinction between the Woman and the Man; a distinction original, essential, and everlasting.. . .It is a distinction made by the Creator Himself, stamped ineffaceably, not on the body only, but also on the soul and spirit; a distinction which no art, device or practice can change or abolish.[112]

[111] Ibid.

[112] Morgan Dix, *The Calling of a Christian Woman and her Training to Fulfill It* (New York: D. Appleton and Company, 1883), 17-18. Courtesy of the Boston Athenaeum. This volume is the compilation of Dix's sermons.

In another sermon, he placed the blame for all the evil in the world on Eve and her female descendents. The message was clear: women needed to remain in their spheres, as God had ordained.[113]

Upon reading about Dix's sermons, New York suffrage leader and Darwinian Lillie Devereux Blake exclaimed to her daughter, "Katie! This wretched man must be answered! What shall I do? How can I do it?" She decided to give a lecture in response to each of Dix's; her lectures were later published as *Woman's Place To-day* (1883). The newspapers and public followed the debate, and, according to Katie, Blake made Dix look like a fool.[114] Blake, the great granddaughter of Jonathan Edwards, was no stranger to powerful oratory or to speaking her mind.[115] She had previously lobbied to make Columbia University coeducational and written a bold novel, *Fettered for Life; or, Lord and Master* (1874), which criticized patriarchal marriage and domestic violence. Blake's well-publicized lectures also brought her into closer contact with Elizabeth Cady Stanton who saw in her a kindred spirit.

Throughout the 1880s and 1890s, Stanton published scores of articles in freethought journals and in the *Woman's Tribune* calling attention to the church's

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[113] *Popular Science Monthly* also reported on the Dix controversy and sided with Dix, until the editors decided his proposed female curriculum was not female enough. See, "Dr. Dix on the Woman Question," PSM 23 (May 1883): 120-123; and Editor's Table, "The Back-down of Dr. Dix," PSM 23 (July 1883): 409-411.

[114] Lillie Devereux Blake, *Woman's Place To-day* (New York: J.W. Lovell, 1883). Katherine Devereux Blake and Margaret Louise Wallace, *Champion of Women: the Life of Lillie Devereux Blake* (New York: Fleming H. Revell, 1943), 151-152. Blake was so interested in Darwin's ideas, especially about inheritance and heredity, that she wrote him a letter and received one in response, 113. Blake's quarrel with Dix was also about the co-education of women at Columbia, which Dix opposed and which Blake fought for. For more on Blake's efforts to open Columbia to women, see Grace Farrell, *Lillie Devereux Blake: Retracing a Life Erased* (Amherst: University of Massachusetts Press, 2002).

[115] William Leach, *True Love and Perfect Union*,, 113. Leach also mentions Blake's interest in Huxley, Darwin, and Spencer.

hypocrisy and trying to drum up support for her fledgling project, *The Woman's Bible.* Whereas she had previously, at least half-heartedly, joined with most other suffragists in attempting to interpret the Bible in a more positive light for women, she now wanted to prove that it was fundamentally opposed to women's advancement. Besides taking on the clergy, she chided her short-sighted and, to her, naïve women's rights colleagues for clinging to the Bible. Beginning in 1878, Stanton and her core group of followers brought forth resolutions condemning organized religion for the degradation of women at every NWSA convention. So strong was their resistance to associations with Eve that the 1885 resolution proposed that NWSA disavow association with any religious body that taught women were inferior as a result of creation. Such moves earned Stanton the ire and skepticism of most NWSA members who were intent on arguing that suffrage was part of God's plan and on remaining respectably within the mainstream of American culture.[116]

As her efforts to incite religious radicalism within the women's rights movement faltered, Stanton increasingly considered herself a "free lancer" outside of the movement and, in the summer of 1886, she began work on the *Woman's Bible*, which she thought would be her greatest contribution to women's emancipation. She wanted this book to inspire "more common sense, science and philosophy in the minds of woman, and less religious fanaticism," and she hoped that what had cured her Finney-inspired nightmares

[116] For example, the 1885 resolution is reprinted in *Eighty Years and More*, 381. See also Kern, *Mrs. Stanton's Bible*, 95-97 and Banner, *Elizabeth Cady Stanton*, 154-155. Minutes from one meeting where such a resolution was debated were reprinted in the *Woman's Tribune*, March 1885.

would also cure her peers of their misplaced faith in scripture.[117] To this end, Stanton approached women whom she knew had an interest in religion and asked them to serve on the Woman's Bible committee. She endeavored to convince a wide variety of women – from evangelicals to Jews to freethinkers -- to write biblical commentaries but, despite Stanton's personal letters and frequent entreaties, nearly all refused to participate.

Naturally, one of the first women Stanton approached was the Reverend Antoinette Brown Blackwell. Blackwell, too, politely declined. Interestingly, however, during the final decades of her life, Blackwell was working on her own magnum opus, *The Making of the Universe* (1914), which she hoped would reconcile scientific and religious teachings as well as establish a scientific basis for life after death.[118] Rebuffed by her first slate of committee members, Stanton decided to cast a wider net. In 1888, she planned to host a "Bible Convention" in conjunction with the International Council of Women (ICM) held in Washington, D.C. through which she was sure that she would be able to recruit a diverse, international committee of women. Again, her efforts failed and the project stalled.[119]

One woman whom Stanton did manage to recruit at the 1888 ICM was fellow freethinker Helen Hamilton Gardener, a popular lecturer and amateur scientist. Stanton befriended Gardener through their mutual friendship with Robert Ingersoll, who inspired the publication of Gardener's first book *Men, Women and Gods and Other Lectures*,

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[117] Stanton, "The Revising Committee of the Woman's Bible," *Woman's Tribune* 15 June 1895.

[118] Antoinette Brown Blackwell, *The Making of the Universe, Evolution the Continuous Process Which Derives the Finite From the Infinite* (Boston: The Gorham Press, 1914). Blackwell argued that God set the evolutionary process in motion and was evident in all of nature's inner-workings. This book does not have much to say about gender. For more information about this book, see Cazden, 256-258.

[119] Kern, *Mrs. Stanton's Bible*, 103.

published in 1885. The two became increasingly close in the final decades of Stanton's life. Stanton even asked Gardener to deliver her eulogy and ensure that her final wishes were carried out according to the letter of her will.[120] Though Gardener did not contribute any signed commentaries to the *Woman's Bible,* her influence was nevertheless significant.[121] Gardener, who was sometimes referred to as "Ingersoll in soprano," affirmed Stanton's commitment to freethinking feminism and provided her with a like-minded partner and sounding board. [122]

Gardener shared Stanton's conviction that the parable of Adam and Eve shaped notions of gender and curtailed women's rights. Biblical gender paradigms even influenced men of science, she asserted, especially those who had not fully accepted evolution. "If he absolutely believe in the 'Garden of Eden' story he deals with 'Adam' as a creature after 'God's own heart and in his image,' and therefore capable and deserving of all opportunity and development for and because of himself, and to promote his own happiness," mused Gardener. She went on:

> 'Eve', of course, receives due attention as a physical, anatomical specimen, 'with intuitions' – a mere bone or rib of contention, as it were, between man and man. The more orthodox the man, the bonier the rib. The more literal and consistent

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[120] See Gardener's eulogy of Stanton reprinted as, "Elizabeth Cady Stanton: Address of Helen H. Gardener at the D.C. Memorial Meeting," *Woman's Tribune*, 22 November 1902.

[121] According to Stanton, when she asked Gardener to join her in this endeavor, Gardener replied: "I consider this a most important proposal. . . . In fact I have begun already with Paul's Epistles, and am fascinated with the work. The untenable and unscientific positions he takes in regard to woman are very amusing. Although the first chapter of Genesis teaches simultaneous creation of man and woman, Paul bases woman's subjection on the priority of man, and because woman was of the man. As the historical fact as far back as history dates, the man has been of the woman, should he therefore be forever in bondage to her? Logically, according to Paul, he should." "Reminiscences, excerpt from the Woman's Bible," *Woman's Tribune*, 5 September 1891, 282; also recounted in Stanton, *Eighty Years and More*, 392.

[122] George E. Macdonald, *Fifty Years of Freethought: Being the Story of the Truth Seeker, with the Natural History of its Third Editor*, volumes I and II (New York: The Truth Seeker, 1920, reprint The Atheist Viewpoint Series, ed. Madalyn Murray O'Hair, New York: The Arno Press, 1972), vol. I, 364 (page citations are to the reprint).

> his faith the less likely is he to deal with woman as an intellectual being, capable of and entitled to the same or as liberal, mental, social, and financial opportunities or rights as are universally conceded to be the birthright of man.[123]

Like Stanton, Gardener located the source of women's oppression in the Garden of Eden, though she was more interested in science than the Bible, as will be discussed in chapter two.

Despite persuading Gardener to participate, Stanton's project flailed throughout the early 1890s. When a Baptist preacher publicly denounced the 1895 NAWSA Convention in Atlanta, however, Stanton was inspired to renew her efforts on the *Woman's Bible*.[124] The Woman's Bible revising committee she secured in the 1890s, however, looked nothing like the rainbow of religions that she dreamed of recruiting in the 1880s. What she ended up with was a small cohort of freethinking women much like herself. Over the years, Stanton has been accused numerous times of listing people as members of the revising committee without their consent, including Carrie Chapman Catt. So, there is some confusion over who was actually a member and who was not, but the main contributing participants were: Lillie Devereux Blake, Matilda Joslyn Gage, Frances Ellen Burr, Ellen Battelle Dietrick, Rev. Phebe Hanaford (a protégé of Rev. Olympia Brown), Ursula Gestefeld (a pioneer in the New Thought movement), and Clara Bewick Colby, the publisher of the *Woman's Tribune*, where the *Woman's Bible* first appeared in serial form.

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[123] Helen H. Gardener, "Sex in Brain," paper delivered at the International Council of Women, Washington, D.C. 1888. *Report of the International Council of Women* (Washington: Rufus Darby Printer, 1888), 369-382. Quote is on page 371. This essay is also reprinted in Gardener, *Facts and Fictions of Life*. Many of the conference proceedings were also covered in the *Woman's Tribune* which temporarily relocated to Washington to cover the historic event.

[124] Kern, *Mrs. Stanton's Bible*, 135.

With her revising committee in place, Stanton finally published volume one of her controversial project in 1895 and volume two in 1898. The *Woman's Bible* consisted of reprints of all the biblical passages relating to women, which according to Stanton comprised just ten percent of the Bible, alongside commentaries written by Stanton and the committee. In these commentaries, the women focused on translation issues, biblical history, and textual analysis.[125] The commentaries on Genesis provided the dramatic core of the text and were shaped by the writers' familiarity with evolutionary discourse. As Stanton explained in the preface:

> Scientists tell us that 'the missing link' between the ape and man, has recently been discovered, so that we can now trace back an unbroken line of ancestors to the dawn of creation. As out of this allegory [Genesis] grows the doctrines of original sin, the fall of man, and woman the author of all our woes, and the curses on the serpent, the woman, and the man, the Darwinian theory of the gradual growth of the race from a lower to a higher type of animal life, is more hopeful and encouraging.[126]

To Stanton, having apes as ancestors, rather than Eve, boded well for women's rights.

The first passage analyzed in the *Woman's Bible* was the primary account of creation, Genesis 1: 26-28. Significantly, this version stated, "So God created man in his own image, in the image of God created he him; male and female created he them." In contrast, a subsequent passage in Genesis (2: 21-25) described Eve as having been crafted from Adam's rib as a helpmate. This second passage was the one that gave women so much trouble over the years. Given the two contradictory accounts, Ellen Battelle Dietrich, the author of the commentary, favored the first because it also had the backing of science. She also read in this first passage evidence of the "feminine element in the

[125] Stanton, *Woman's Bible*, preface.
[126] Stanton, *Woman's Bible* excerpt, *Woman's Tribune*, 6 April 1895; Stanton, *Woman's Bible*, 24.

Godhead"[127] Dietrich suggested that the masculine and feminine elements "exactly equal and balancing each other, are as essential to the maintenance of the equilibrium of the universe as positive and negative electricity, the centripetal and centrifugal forces, the laws of attraction. . .." These remarks mirror those of Antoinette Brown Blackwell who, two decades earlier, argued for women's rights on the basis of "equivalence" and the balance of forces throughout the universe.[128] According to these forward-thinking women, evolution meant equivalence whereas the Bible signaled inequality.

Despite the problems she had securing a revising committee and a publisher (she ultimately published the *Woman's Bible* at her own expense), Stanton remained optimistic that her book would inspire critical thought and liberate women from what she believed to be the ultimate cause of their oppression. Individual readers may have experienced rationalist epiphanies while reading the book, but the majority of women, as well as men for that matter, stridently opposed it. The mainstream press initially greeted its publication with curiosity, but most reviews of the work criticized either the quality of the writing and research or Stanton's temerity in selecting such a topic. The only venues where her work was favorably and enthusiastically received were the freethought journals and the *Woman's Tribune*.[129] While some women who wrote letters to the *Woman's Tribune* disagreed with Stanton's arguments, all agreed that the source of women's subjection could be found in the Garden of Eden. One correspondent called it "the one

[127] Ibid., 14.
[128] Stanton, *Woman's Bible*, 15.
[129] For a detailed analysis of the book's reception, see Kern, *Mrs. Stanton's Bible*, 172-222.

great rock of ignorant superstition which, more than any other, blocks the road of woman's progress."[130]

Not to be outdone by clerical and mainstream opposition to Stanton's project, the leading women's organizations, including the Woman's Christian Temperance Union (WCTU) and the recently reunited National American Woman Suffrage Association (NAWSA), publicly denounced Stanton. After having spent a lifetime promoting women's inherent piety and their moral imperative to assume a larger role in church and public affairs, these women were not about to be undone by Stanton's quixotic quest. The *Woman's Bible* caused so much controversy that Carrie Chapman Catt spearheaded a movement to censure the text at the 1896 NAWSA convention in Washington, D.C. Only a handful of attendees had read the *Woman's Bible*, but most felt that it damaged the cause by association and scared away potential adherents.[131] After much debate, Stanton defenders Blake, Colby, and Susan B. Anthony brokered a compromise. The toned-down resolution read: "That this Association is non-sectarian, being composed of persons of all shades of religious opinion, and that it has no official connection with the so-called 'Woman's Bible,' or any theological publication."[132] Essentially, the debate over whether or not to censure the *Woman's Bible* was also a debate about the future of NAWSA and the larger movement for women's rights: were women solely interested in the vote or did they want to embrace larger, systemic changes? Furthermore, what role should religion play in the movement? Fearing that women would chose orthodoxy and

[130] E.M. King, "The Bible and Woman's Rights," *Woman's Tribune*, 18 November 1891.
[131] Kern, *Mrs. Stanton's Bible*, 182-185
[132] Quoted in Kern, 184.

the vote, Charlotte Perkins Gilman, another broad-minded feminist who was significantly influenced by Darwin and who will be discussed in chapter 4, dragged herself from her sickbed (she had the mumps) to the NAWSA meeting to "fight the resolution disavowing the Woman's Bible." Gilman offered a compromise amendment that declared NAWSA's non-sectarian nature but did not specifically mention the *Woman's Bible*; it failed by five votes.[133]

NAWSA's censure of the *Woman's Bible* secured the suffrage-only route that women's rights leaders had been progressively moving toward and signaled Stanton's final ouster from the movement and from future organized suffrage activities. In a battle that Stanton had been fighting since the 1860's, the suffrage-only camp, represented by Lucy Stone, Henry Blackwell, and, later, Carrie Chapman Catt, finally won out over those women, led by Stanton, who were interested in dismantling patriarchy. United by their interest in evolution and freethought, the community of women that formed around the *Woman's Bible* was subsequently ostracized from the mainstream suffrage movement (with the exception of Helen Gardener who rose to prominence in the 1910's).[134] In 1900, Stanton backed Revising Committee member Lillie Devereux Blake to succeed Susan B. Anthony as President of NAWSA, but Blake was forced to withdraw from the election over a technicality and the post went to Carrie Chapman Catt. With their single-minded focus on the ballot Carrie Chapman Catt, Lucy Stone, and others drove out those

[133] Kern, *Mrs. Stanton's Bible*, 181-189.

[134] I am not yet sure how Gardener became a leader of the mainstream NAWSA in the 1910's. She opposed the NWSA/AWSA merger in 1890 and instead tried to form a more radical suffrage group. In 1902, she married Army Lieut. Seldon Allen Day and moved to Washington, D.C. Preliminary research leads me to believe that this marriage turned her into a Washington insider (and neighbor to Congressional leaders) which facilitated her becoming "the diplomatic corps" of NAWSA.

women who asked bigger questions and who were prepared to address the ramifications of Darwinian evolution head on.[135] By marginalizing women like Stanton from the movement, organizational leaders ensured the eventual victory of suffrage, no small feat, but they also thwarted the further development of feminist thought, especially as it sought to probe the foundations of women's subjugation in science, anthropology, marriage, and religion.

Evolution also forced Antoinette Brown Blackwell to realign herself within women's rights circles. While she had started off on the suffrage circuit with Susan B. Anthony in the 1850s, her belief that adherence to evolutionary mandates could revolutionize gender roles impelled her to look for answers to the "woman question" that could not be provided by the vote. Her articles and speeches throughout 1870s and 1880s addressed such topics as the comparative mental powers of the sexes, married women's right to work, and the equitable distribution of household labor. These articles were all informed by evolutionary principles, and Blackwell defined progress for women in evolutionary terms. Evolutionary discourse inspired Blackwell's thoughts on gender; evolution and its reception prompted Stanton to embark on her ill-fated Bible project; and evolution inspired much of the feminist thought of Charlotte Perkins Gilman, the woman who took up the mantle of intellectual-outsider after Stanton's death. For Stanton, Blackwell, Blake, Gardener, and Gilman, science drew them away from traditional

[135] The NAWSA election of 1900 and the rift between Stanton's followers and Catt and her followers is discussed in greater detail in Kern, *Mrs. Stanton's Bible*, 200-206. See also, Farrell, *Lillie Devereux Blake*, 168-172.

suffrage activities and into larger questions about gender and sex.[136] Their faith in evolution helped shape nineteenth-century feminist thought, even as it distanced them from formal women's rights affiliations.

Women who were interested in issues beyond the vote forged new alliances outside of suffrage circles, through such venues as the Association for the Advancement of Women, the Woman's Bible Revising Committee, and the freethought movement. Their histories have been largely overlooked by historians, who, like the suffragists, have focused mainly on the winning of the vote. By tracing the ways in which women responded to, contested, and interpreted evolutionary theory, a broader and more complete picture of nineteenth-century feminist thought emerges.

Conclusions

Between 1848, when Elizabeth Cady Stanton wrote the Declaration of Sentiments, in a flurry of excitement and organizational activity, and 1895, when she published the *Woman's Bible*, largely alone with her ideas, America witnessed tremendous changes. When Stanton convened the first annual Women's Rights

[136] Gilman and her work will be discussed in chapter 4. Interestingly, she also argued that evolution undermined biblical gender paradigms and freed women from Eve. In a critique of Rudyard Kipling's "Study in Natural History," she argued that "two cardinal errors disfigure Mr. Kipling's argument. One is in his naïve acceptance of the ancient theory expressed in the sounding phrase 'the woman that God gave him.' This rests on the Hebraic story of Adam and Eve, and shows a simple faith quite astonishing in this day and generation. A casual study of early forms of life would show Mr. Kipling that in the order of evolution the female came first; or, more, correctly speaking, that the earliest life forms were asexual, later developed to a hermaphroditic stage, and later still improved by the introduction of a new assistant – the male; while the original organism, later called female, continued to fulfill all race functions as before." "It is a pity that an author of such power, a man of such wide experience, should seek zoological authority in the Hebrew scriptures." CPG, "Comment and Review," *The Forerunner* 2, (December 1911): 336-337. See also "Having Faith in Evolution," *The Forerunner* 6 (November 1915): 299-300.

Convention in Seneca Falls in 1848, she thought the document she needed to amend was the Declaration of Independence. After working for the cause of women's rights for forty years, she decided the document she really needed to revise was the Bible. The two things Stanton felt sure of in 1848 – liberal Christianity and enlightenment egalitarianism – had both been tested and found lacking by slavery, the Civil War, immigration, industrialization, and evolution. Evolution, however, offered a compelling alternative. Darwinian theory challenged the biblical basis for women's subordination by refuting the existence of Adam and Eve, and, simultaneously, encouraged women to seek truth not in scripture or man-made law but in nature. Evolution also convinced men and women that there was a biological basis of gender difference, but it encouraged them to work out the details through the scientific experimentation, a field in which both sexes could participate and in which verifiable truth was the goal.

After 1870, women increasingly tethered evolutionary principles and language to the cause of women's rights, whether or not evolutionary scientists supported these efforts, and were liberated by the challenge of critical thought, the promise of an unbiased scientific method, and the freedom from biblical strictures that evolution afforded. Women's rights rhetoric reflected these changes. Women abandoned the lure of equality and the promise of salvation for the certainty of equivalence and evolution. In short, many women traded in Eve for evolution. Mainstream women's rights activists frequently incorporated both evolution and religion in their rhetoric; however, a few women followed evolutionary theory to its most material conclusion and suggested that the women's rights movement sever ties with organized religion. As a result, evolution

forced the movement to reassess its relationship to religion, an assessment that effectively marked suffrage as a mainstream, instead of revolutionary, movement.

Finally, evolution provided a new way for women to view the universe and their role in it, and a new language to describe what they saw. Evolution reframed the terms of gender debates from biblical ancestors to animal kin, from individual to species, and from piety to reproduction. Based more on women's bodies than on women's souls and more on women's biological function as mothers than on their religious faith, science, nevertheless, offered the promise of objectivity. Even though women were confronted with a new onslaught of scientific and medical arguments about their "natural" inferiority, many welcomed this change of base. As Charlotte Perkins Gilman later explained, the scientific mind "brings a modesty that knows its ignorance in contrast to the old religious pride possessed by all faiths alike, a profound love of truth leading to endless patient study and experiment."[137] Such a mindset made it easier for women to challenge old beliefs and advance their cause. Unlike the halls of Congress or the pages of scripture, at least women were players in the evolutionary saga and they, too, could conduct scientific experiments and challenge the experiments of others. Of course, biblical calls for and against women's rights persisted, but, after the publication of *The Descent of Man* in 1871, the major forum for debates about gender began to shift from Genesis to *Popular Science Monthly*. Women's tactics reflected this change – a change that in many ways they had helped to engineer. Freed from having to rehabilitate and defend Eve, women began to fight science with science and counter second-hand

[137] Charlotte Perkins Gilman, "Our Brains and What Ails Them," *The Forerunner* 3 (July 1912): 194.

scientific pronouncements with their own studies and with the evidence of their experience.

Chapter Two: "To Teach the Truth in Nature:" Women Embrace Scientific Investigation and the Evidence of Their Experience

> "When religious influence and dogma began to close their terrors, legal enactments were slowly modified in woman's favor and hell went out of fashion. Then Conservatism, Ignorance, and Egotism, in dismay and terror, took counsel together and called in medical science, still in its infancy, to aid in staying the march of progress which is inevitable to civilization and so necessary to anything like a real republic. Equality of opportunity began to be denied to woman, for the first time, upon natural and so-called scientific grounds. . . It was no longer her soul, but her body, that needed saving from herself."[1]
>
> Helen Hamilton Gardener, 1888

In the summer of 1886, Smith College, the prestigious women's school in Northampton, Massachusetts, erected an historic building: the Lilly Hall of Science, the nation's first building dedicated to women's scientific studies and experimentation. Founded in 1872 as a bequest from Sophia Smith to provide women the "means and facilities for education equal to those which are afforded now in our Colleges to young men," Smith College quickly became a leader in the higher education of women and the first to offer women the standard male curriculum.[2] Students availed themselves of the latest knowledge and undertook rigorous academic schedules. Central to this challenging curriculum was science. As President L. Clarke Seelye explained in his inaugural address:

> That narrowness which has always been the bane of female education, we wish especially to avoid. Our aim has been to so arrange the course in natural sciences that young ladies may become sufficiently well acquainted with their general

[1] Helen H. Gardener, "Sex in Brain," in *Facts and Fictions of Life*, 3d ed. (Boston: Arena, 1895), 98.

[2] "Last Will and Testament of Miss Sophia Smith," (Northampton: Gazette Printing, 1872), 10. Courtesy of the Smith College Archives, Smith College, Northampton, Massachusetts (hereafter SCA).

> principles and leading facts to feel an interest in the progress of science; to clearly comprehend its important discoveries, and to be prepared to make, afterward, in some chosen field, original investigations.[3]

This was a bold claim. At the time, few believed that women were in fact capable of conducting "original investigations."

Smith students were especially interested in evolutionary science and the new fields of zoology and biology, but by the early 1880s it had become apparent that the young women's interest in science had outpaced the college's infrastructure. In particular, the women lacked adequate laboratory space. President Seelye endeavored to find a donor to fund the construction of a building dedicated to scientific study among women. In 1884, he happened to share a ride to Boston with Alfred T. Lilly, a wealthy man from nearby Florence, Massachusetts. Lilly had made his fortune in silk manufacturing and he was a supporter of women's education, as well as a critic of Christian orthodoxy.[4] Seelye told Lilly that he was on his way to meet with potential contributors for Smith College's new science building, and Lilly expressed his interest in this worthwhile project. A year later, Lilly heard that Seelye had not yet managed to fund this project and offered his financial support. Lilly decided to contribute to this historic building because he had seen and experienced "the happy effects of giving the women an equal part with the men in the business of this society and its public teachings" and because something about women learning science appealed to freethinking Lilly.[5] Seelye

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[3] Rev. L. Clark Seelye, Inaugural Address, 14 July 1875, (Springfield: Clark W. Bryan and Company, 1875), 23. Bound in the *Official Circulars Book*, 1872-1884, SCA.

[4] L. Clarke Seelye, *The Early History of Smith College, 1871-1910* (Boston: Houghton Mifflin, 1923), 65. SCA.

[5] *Memorial: Alfred Theodore Lilly*, 7 June 1890 (Florence: Trustees of Florence, 1890). Buildings Collection, Box 76, SCA.

recalled that Lilly had told him if the funds had been needed for a male institution, he "would never give a cent," but he "believes in science, and believes that truth is as valuable for women as men." According to Lilly's wishes, the engraved plaque on the Lilly Hall of Science reads, "Gift of Alfred Theodore Lilly to teach the truth in nature."

The ramifications of this donation were both symbolic – building laboratories for women showed that they could contribute to scientific progress, not just learn about the innovations of others – and practical, generations of female students availed themselves of its state-of-the-art facilities. Reporting on this landmark donation, the *Woman's Tribune* called it "magnificent" and reprinted long excerpts from Lilly's speech about the importance of scientific education for women.[6] The *Woman's Journal* also devoted front page coverage to this unusual bequest, noting that applications to Smith were on the rise and that the next entering class would likely be the largest yet.[7] The Lilly Hall of Science epitomized women's burgeoning interest in science and the growing consensus among those interested in female advancement that science was good for women. At the same time, however, the very mission of Smith College, and others like it, elicited tremendous debate throughout the 1870s and 1880s -- did higher education make women infertile? Should women be educated alongside men? Could women's bodies and minds withstand rigorous academic courses?

[6] "Lilly Hall of Science," *The Woman's Tribune* 3, August 1886, 2. For an in-depth study of how nineteenth-century women learned about and engaged in evolutionary science at neighboring Mount Holyoke, see Miriam R. Levin, *Defining Women's Scientific Enterprise: Mount Holyoke Faculty and the Rise of American Science* (Hanover: University Press of New England, 2005).

[7] *The Woman's Journal*, 3 July 1886, 1.

At the end of the nineteenth century, Americans found evolutionary discourse particularly applicable to the debates over whether or not women should attend college. As more and more western colleges admitted women, and as more and more women demanded acceptance at eastern universities, securing access to higher education was a focal point of women's rights activity throughout the 1870's and 1880s. Proponents of women's rights claimed that their femaleness was so essential to their being that no amount of education or work could undo it, or, conversely, that their bodies and minds were in no way inferior to men's. Opponents argued that female education not only dismantled sex differentiation, the very advancement that distinguished civilized from savage, but also stymied the evolutionary process by diverting women from motherhood.

Charles Darwin's *The Descent of Man, and Selection in Relation to Sex* was published in 1871, when the higher education of women was a pressing question, and Darwinian language frequently shaped the debate. As one scientist noted, since Darwin "remodeled" natural history, it has "been found capable of throwing valuable lights, previously little anticipated, upon topics quite unconnected with the origin and attributes of zoological or botanical species." In particular, this author suggested that Americans apply evolutionary theory to the question of women's rights.[8] Similarly, an editorial in *Popular Science Monthly* argued that in order to come to a conclusion about women's proper role in society, "[w]e have also to consider women in the light of biological science – that is, the physiological nature, modifications, and limitations of her sex; and we have again to study her mental and emotional traits as determined by her biological

[8] "Biology and 'Woman's Rights,'" reprinted from *Quarterly Journal of Science* in *Popular Science Monthly* 14 (December 1878): 201-213. Hereafter PSM.

constitution and maternal experience."[9] Men and women found Darwinian evolutionary theory to be applicable to a variety of ideological viewpoints. While the opponents of female education could count Darwin's actual words more firmly in their corner, the flexibility of evolutionary discourse allowed proponents of female education to incorporate it into their arsenal, as well as demand that scientific pronouncements meet the high standards of research popularized by Darwin.

Women were keen to the shift from religious to scientific justifications for female inferiority and to the multivalence of evolutionary rhetoric. As Antoinette Brown Blackwell noted:

> It is now generally admitted that it would be as futile to expect the Bible to settle her position in the community as to expect it to settle the details of domestic service, or the exact process of the creation of the world. Hence, if she applies for admission to Harvard, Harvard can offer its most humane denial in the name of Physiology.[10]

Which is exactly what Harvard did. But women, too, had been energized and inspired by Darwinian evolution and the popularization of science. So, when Harvard and other schools denied them admission on the basis of "scientific" evidence, women responded with their own scientific studies and the evidence of their experiences.

This chapter analyzes three debates about female intelligence and aptitude for higher education that arose following the publication of Darwin's *The Descent of Man*: 1) Dr. Edward H. Clarke's theory that women's periodicity unfit them for higher education; 2) Dr. William A. Hammond's argument that women's brain size and structure proved

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[9] "Professor Cairnes on Woman Suffrage," PSM 6 (Nov 1874): 113.

[10] Antoinette Brown Blackwell, *The Sexes Throughout Nature* (New York: G.P. Putnam's Sons, 1875, reprinted through The Pioneers of the Woman's Movement series, Westport: Hyperion Press, 1976), 229-230 (pages are to the reprint edition).

their intellectual inferiority; and 3) the popular idea that men were naturally more "variable" than women and, thus, more likely to be geniuses. According to these theories, women were not inferior to men because Eve ate of the apple, but because inferiority was written on their very bodies. Women's smaller brains, taxing menstruation, lack of physical variation and strength, maternity, among many other supposed defects, cemented their confinement to the home. In each case, opponents of female advancement seized upon Darwin's claims that, after thousands of years of struggling for mates and survival, men had become mentally and physically superior to women, more variable than women, and more likely to pass on their traits to male offspring. They also promoted the Darwinian worldview that sex differentiation was a sign of evolutionary advancement and reproduction was the central act of life. To them, it seemed as if the evolutionary ethos provided an ideal justification for blocking female educational endeavors.

Previous examinations of Clarke, Hammond, and the theory of greater male variability have focused on the misogynistic bias at the root of these male pronouncements about female intellect. They tell the story of how nineteenth-century scientists and doctors colluded to pathologize menstruation, essentialize women according to their maternal function, and, in general, bar women from the professions.[11]

[11] The best and most thorough account of the scientific studies of gender that emerged in the late nineteenth century is Cynthia Eagle Russett's *Sexual Science: The Victorian Construction of Womanhood* (Cambridge: Harvard University Press, 1989). Russett does a brilliant job of explaining the ideology behind these scientific studies of gender, the ways in which they built on and reinforced each other, and the sexist science that resulted. It is a must read for anyone interested in the science of gender. While she does mention feminist responses to scientific theories of women's inferiority, the main point of her book is to document the various scientific theories of women's inferiority. Rosalind Rosenberg's *Beyond Separate Spheres: Intellectual Roots of Modern Feminism* (New Haven: Yale University Press, 1982) is another

If one focuses on the writings of Clarke, Hammond, and the mainstream press, this is certainly the story that emerges. However, if one also looks at the ways in which women disputed these theories and if one examines the long-term trajectories of these debates, a different story comes to light. Yes, throughout the late 1800s, evolutionary scientists and doctors advanced a slew of theories to "prove" that female intellectual inferiority was biological and permanent. These publications, no doubt, set the tone for decades of scientific study of gender, and, in some respects, still haunt us today. Yet, equally as interesting is the fact that, in each case, women united around the scientific method, amassed their own data, conducted their own studies, and, ultimately, dismantled all three of these sexist claims. In the process, women established the right to discuss their bodies with authority; proved that menstruation was a healthy function, not a disease; and galvanized public support for female education.

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excellent study of these debates. Rosenberg begins with debates about Clarke's *Sex in Education* and then traces the first generation of women social scientists who dismantled biological determinism in the early twentieth century. This chapter draws on her interpretation of the greater male variability debates in the 1910s and attempts to connect them more closely to the earlier controversies. See also, Marie Tedesco, "Science and Feminism: Conceptions of Female Intelligence and their Effect on American Feminism, 1859-1920" (Ph.D. diss., Georgia State University, 1978); Carroll Smith-Rosenberg and Charles Rosenberg, "The Female Animal: Medical and Biological Views of Woman and Her Role in Nineteenth-Century America," *The Journal of American History* 60 (September 1973): 332-356; Evelleen Richards, "Darwin and the Descent of Woman," in *The Wider Domain of Evolutionary Thought,* ed. David Oldroyd and Ian Langham (Boston: D. Reidel Publishing Company 1983): 57-111; Janice Law Trecker, "Sex, Science and Education," *American Quarterly* 26 (October 1974): 352-366; Susan Sleeth Mosedale, "Science Corrupted: Victorian Biologists Consider 'The Woman Question,'" *Journal of the History of Biology* 11 (Spring 1978): 1-55; John S. Haller, Jr. and Robin M. Haller, *The Physician and Sexuality in Victorian America,* (Urbana: Univeristy of Illinois Press, 1974); for a discussion of Patrick Geddes and J. Arthur Thomson in particular see, "Stereotypes of Femininity in a Theory of Sexual Evolution," by Jill Conway, in *Suffer and Be Still: Women in the Victorian Age,* ed. Martha Vicinus (Bloomington: Indiana University Press): 140-154. For a case study of two British feminists', Eliza Lynn Linton and Frances Power Cobbe, responses to the *Descent,* see Evelleen Richards, "Redrawing the Boundaries: Darwinian Science and Victorian Women Intellectuals," in Bernard Lightman, ed. *Victorian Science in Context* (Chicago: University of Chicago Press, 1997): 119-142.

Is Intelligence a Secondary Sex Characteristic?

In *The Descent of Man, and Selection in Relation to Sex*, Darwin was more concerned with the origin of physical secondary sex characteristics than mental ones, though he did make several influential statements about the intellectual differences between the sexes. For example, he explained that over the course of many generations male-versus-male competition for female mates, together with their general struggle to survive, had forced men to develop more complex and varied skills than women, who simply waited to be selected and protected. Furthermore, men transmitted these hard won traits "more fully" to their male offspring than to their female. Thus, over many thousands of years, Darwin concluded:

> man has ultimately become superior to woman. It is, indeed, fortunate that the law of the equal transmission of characters to both sexes has commonly prevailed throughout the whole class of mammals; otherwise it is probable that man would have become as superior in mental endowment to woman, as the peacock is in ornamental plumage to the peahen.[12]

Opponents of female education seized upon the "peacock" and "peahen" analogy, frequently reciting and reprinting it in their efforts to block women's advancement, though Darwin himself supported female higher education and his ideas on women's mental capacities were more complex than those revealed in that one statement.

To reach the conclusion that men were both physically and intellectually superior to women, Darwin correlated physical traits with mental ones, arguing that the former informed the latter and that we could assess one by studying the other. Men were physically stronger and more vigorous; thus, they were mentally more astute and

[12] Darwin, *Descent* II, 328-329.

competent. He also stressed the importance of sex-linked traits – the idea that certain traits were more likely to be passed on to the same-sex offspring. Sons inherited more traits from their fathers, and vice versa, even though some traits were inherited by offspring of both sexes. Darwin admitted that the exact mechanisms of heredity had yet to be determined, but he surmised that men passed on some, though not all, of their traits exclusively to their sons and women to their daughters. As a result, men had naturally become the intellectual superiors of women and women's intellectual capacities were permanently limited by their reproductive functions, which drew the lion's share of their energy and of evolutionary attention.[13]

Mental differences between the sexes particularly stood out at the level of genius, where Darwin saw few women. According to the great naturalist, "[t]he chief distinction in the intellectual powers of the two sexes is shewn by man attaining to a higher eminence, in whatever he takes up, than woman can attain – whether requiring deep thought, reason, or imagination, or merely the use of the senses and the hands."[14] Opponents of female advancement had used the paucity of highly accomplished females as a rallying cry for centuries, but Darwin gave such observations the weight of evolutionary necessity and scientific credibility. Not only had women failed to achieve eminence, nature decreed that they eschew it for evolutionary purposes. According to Darwin intelligence was a secondary sex characteristic.

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[13] Herbert Spencer and Darwin agreed on this point. See Herbert Spencer, "Psychology of the Sexes," *Popular Science Monthly* 4 (November 1873): 30-38. Spencer asked rhetorically, "are the mental natures of men and women the same?" Surely, not, he replied. "That men and women are mentally alike, is as untrue as that they are alike bodily. Just as certainly as they have physical differences which are related to the respective parts they play in the maintenance of the race, so certainly have they psychical differences, similarly related to their respective shares in the rearing and protection of offspring" (31).

[14] Darwin, *Descent* II, 327.

Darwin's emphasis on male genius was partially due to his ideas about the inheritance of sex-linked traits and partially due to the pioneering work of his cousin Francis Galton. Galton, better known today as the father of the eugenics movement, received great acclaim in the nineteenth century for his study of the origins of genius, *Hereditary Genius: An Inquiry into Its Laws and Consequences* (1870).[15] Galton argued that genius, like a prominent nose, was passed on from parent to child; for evidence he relied on the family trees of the most eminent men in England and the fact that so many noteworthy men, himself included, sprung from noteworthy progenitors.[16] Galton thought it axiomatic that genius was exclusively a male trait, though he did cite maternal influence as an indicator of later eminence in certain professions. He also argued that even though females suffered from an "inherent incapacity" to transmit genius to their offspring, maternal hereditary lines were, nevertheless, almost as influential as paternal ones.[17] From Galton's studies, Darwin inferred that "if men are capable of decided eminence over women in many subjects, the average standard of mental power in man must be above that of woman."[18] Because Darwin and Galton believed that some traits were transmitted by sex – from father to son, or mother to daughter -- minor differences

[15] Francis Galton, *Hereditary Genius: An Inquiry into its Laws and Consequences* (New York: D. Appleton and Co., 1870).

[16] Antoinette Brown Blackwell took issue with this assumption and pointed out that Galton did not take into account the fact that daughters were less likely to marry than sons and that when they did marry they changed their names and would be harder to trace. According to Blackwell's recalculations of Galton's data, there was an equal balance of genius between men and women. See, Blackwell, "Heredity," address given at the 1883 Association for the Advancement of Women Annual Congress. Miscellaneous organizations collection, SSC.

[17] Galton, *Genius,* 328-329.

[18] Darwin, *Descent* II, 327.

between male and female aptitude increased over time, perpetuating and exacerbating male intellectual superiority.

Both Darwin and Galton were indebted to pioneering French evolutionist Jean Baptiste Lamarck (1744-1829). Lamarck's major contribution to evolutionary thought was his theory that traits acquired in one's lifetime, including temperance, bravery, and intellectual capacity, could be passed on to one's offspring, a theory often referred to as "Lamarckianism." His ideas, though frequently contested, greatly influenced the work of Darwin and remained plausible until the end of the nineteenth century when they were discredited by the experiments of August Weismann. Many experts, and even more laypeople, believed that acquired traits could be transmitted to the next generation, thereby making education an obvious vehicle for those who wanted to help the evolutionary process along by tailoring it to fit their goals. The Lamarckian model of heredity also helps explain why evolutionary scientists were so interested in the question of female education. It would be one thing to educate a few exceptional women but quite another to simultaneously improve women's lot for eternity.

Darwin himself was loath to apply his evolutionary theories to modern social issues, but the vast majority of his contemporaries lacked such reserve. Nineteenth-century scientists interceded in educational policy in particular because of their concern that current educational practices diminished rather than enhanced the mental distinctions between men and women and because women were increasingly demanding admittance to all-male colleges and universities. Because Darwin asserted that sex differences furthered the evolutionary process and that the most advanced species were those in

which the sexes were the most differentiated, many evolutionists were concerned that female education would diminish sex differentiation and thwart evolutionary advancement. In the words of Dr. Edward Clarke, "differentiation is nature's method of ascent."[19] As evolutionists saw it, animals progressed from asexual to sexual reproduction, developing increasingly complicated mating systems as they ascended the evolutionary ladder. At the very top of this ladder were those humans with the most strictly defined gender roles: married couples in which the husband worked outside the home and the wife tended to children and domestic tasks, couples that also tended be middle-class and white. For example, G. Delauney, the noted French biologist, explained:

> Thus the superiority of women appears everywhere among ancient and inferior races and modern inferior races, but is never observed among superior races, which are, on the contrary, always characterized by the pre-eminence of the man. Whether we regard species or races, we see evolution constantly advancing from the supremacy of the female to that of the male.[20]

To those men steeped in evolutionary discourse and the attendant pride at being at the pinnacle of all living things, women going to college threatened to minimize sex differentiation and upend the evolutionary order.[21]

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[19] Edward H. Clarke, *The Building of a Brain* (Boston: J.R. Osgood and Company, 1874), 53.

[20] G. Delauney, "Equality and Inequality in Sex," PSM 20 (December 1881): 189. In this same issue, the PSM printed a disclaimer of sorts about Delauney's article noting that it expected to receive "in about six weeks" "a bushel, more or less, of answers to it, written very much alike, all in 'hair-marks,' and with very pale ink," (91).

[21] See also, Joseph Le Conte, "The Genesis of Sex," PSM 16 (December 1879): 167-179. According to Le Conte, sex developed as part of "the most universal of all the laws of evolution," the law of differentiation. Sexual differentiation increased as species became more complex. Sexual differentiation also increased "in the higher as compared with the lower races of man" (176).

Nineteenth-century scientists believed that the facts of reproduction defined human intelligence and mental aptitude, as well as physiology. Naturally, the responsibilities of procreation fell disproportionately upon women whose minds were organized to suit their maternal function. Not only were women's hips designed for the production of offspring, so, too, were their thoughts and emotions. George Romanes, Darwin's friend and colleague, explained, "the maternal instincts are to woman perhaps the strongest of all influences in the determination of character."[22] So different were the resulting male and female intellects that Romanes suggested men and women be considered different species:

> In his 'Descent of Man' Mr. Darwin has shown at length that what Hunter termed secondary sexual characters occur throughout the whole animal series, at least as far down in the zoological scale as the Articulata. . . . But I think it is evident that secondary sexual characters of a mental kind are of no less general occurrence. Moreover, if we take a broad view of these psychological differences, it becomes instructively apparent that a general uniformity pervades them—that while within the limits of each species the male differs psychologically from the female, in the animal kingdom as a whole the males admit of being classified, as it were, in one psychological species and the females in another.[23]

To Romanes, women's inferior intellect was not a personal flaw, but rather an evolutionary necessity and a requisite for the creation of healthy offspring. Writing in *Popular Science Monthly*, Miss M.A. Hardaker concurred that since maternity took up "twenty percent of the energy of women between twenty and forty years of age," intellectual equality would lead to the extinction of the race.[24] With stakes this high, it is

[22] George Romanes, "Mental Differences of Men and Women," PSM 31 (July 1887): 392.
[23] Romanes, "Mental Differences," 383.
[24] Miss M. A. Hardaker, "Science and the Woman Question," PSM 22 (March 1882): 581-582.

no wonder that female education was a defining women's rights issue in the 1870s and 1880s.

Darwin, for one, believed that the differences between the sexes went so deep that women could not catch up to men regardless of their educational opportunities. "In order that woman should reach the same standard as man, she ought, when nearly adult, to be trained to energy and perseverance, and to have her reason and imagination exercised to the highest point; and then she would probably transmit these qualities chiefly to her adult daughters," suggested Darwin. "The whole body of women, however, could not be thus raised, unless during many generations the women who excelled in the above robust virtues were married, and produced offspring in larger numbers than other women."[25] Perhaps because he thought any educational gains made by individual women would do little to close the gender gap or perhaps because he was the father of four daughters, Darwin was a stronger supporter of female education than many of his colleagues in the scientific community. The vast majority of evolutionary scientists, doctors, and experts sought to construct educational institutions, practices, and standards along separate male and female tracks.[26]

No one argued that women should not be educated. It was several decades too late for that. But doctors and scientists did wage a vigorous, and in some cases

[25] Darwin, *Descent* II, 329.

[26] The exception to this was Thomas Huxley, Darwin's most ardent and committed popularizer, who supported female education. For a discussion of Huxley's views on women, see Evelleen Richards, "Huxley and Woman's Place in Science: The 'woman question' and the Control of Victorian Anthropology," in *History, Humanity and Evolution: Essays for John C. Greene*, ed. James R. Moore (Cambridge: Cambridge University Press, 1989): 253-284. Richards argues that although Huxley did support female education and made statements in support of female advancement, he blocked women's entry to the Ethnological Society. See also "Professor Huxley on Female Education," PSM 5 (October 1874): 764.

successful, campaign to dictate what and how women studied. The ideal female education amounted to one suited to what many believed were women's inherent traits – overviews of previous discoveries in science, general knowledge of history, and appreciation for the arts, for example, but nothing specialized, no original research or professional training. Opponents of female higher education also pointed out that women's mode of study should match their physical limits. To avoid overly taxing their weaker systems, periods of study should not be intense, sustained, or strenuous. Romanes painted a picture of the type of woman he believed would result from rigorous education: "If we attempt to disregard them [the mental differences between men and women], or try artificially to make of woman an unnatural copy of man, we are certain to fail, and to turn out as our result a sorry and disappointed creature who is neither the one thing nor the other."[27] Today educators and communities debate whether or not to teach evolution; in the 1870s and 1880s, experts argued that evolution should determine what is taught to whom and how.

Proponents and opponents of higher education for women were also talking about the same population of women – middle- and upper-class white women, those most likely to go to college and those whose offspring society valued the most. Thus, the debates regarding female education were often profoundly raced and racist. White women often resorted to racial jargon to separate themselves from uneducated women and women of color and align themselves with their middle- and upper-class white male peers, bolstering the racist rhetoric already endemic to mainstream women's rights in the U.S.

[27] Romanes, "Mental Differences," 400.

White men, on the other hand, brandished the threat of fertile racial "others" to encourage white women to shore up racial superiority by having more children and forsaking college and careers.

The question at the heart of debates about female education, then, was not "should women go to college?," but, rather, "does education make women more or less fit?" Evolutionary scientists and medical doctors argued that those who produced the greatest number of offspring were the most fit and that education unfit women for motherhood by reducing the amount of energy available for maternal functions and delaying the age of childbearing. Their opponents argued that educated women ultimately were the most "fit" because they produced the most advanced offspring. In essence, the debate turned on the issue of quantity versus quality of offspring and whether women should be considered as individuals or as mothers. Both sides accepted the Darwinian principles on which the debate rested; those who supported women's higher education simply challenged the andocentric basis of evolutionary theory and demanded that they be allowed to contribute to the evolutionary process with their brains as well as their bodies, an argument that ultimately proved successful.

"Girls Have Darwinism Harder Than Boys"[28]: Does Higher Education Unfit Women for Motherhood?

One of the first writers to apply *The Descent of Man* to the question of female education was Harvard University medical professor Dr. Edward H. Clarke, author of *Sex in Education, or a Fair Chance for the Girls* (1873).[29] In 1873, Dr. Clarke was a well respected ear and eye specialist and a member of Harvard's Board of Overseers. He had previously made comments in defense of a group of beleaguered female medical students in Pennsylvania and, as a result, the New England Women's Club invited him to deliver an address in 1873. The clubwomen thought they had invited an ally to speak on the subject of "women's fitness for entering practical life." Likewise, Dr. Clarke anticipated a friendly and supportive audience before whom he could unveil his new theory that higher education unfit women for motherhood and made them ill. Both sides thought wrong. Though Clarke had defended the female medical students against the boorish behavior of their male colleagues, he did not think women's bodies could withstand the pressures of higher education. Dr. Clarke's presentation "on the health of women, as

[28] Thomas Wentworth Higginson had a short debate in the pages of the *Woman's Journal* with James Orton of Vassar College. Orton wrote to protest Higginson's characterization of his position on co-education. He wrote about his expertise on the subject and then clarified one of his quotes in Higginson's article: "The phrase 'Girls have Darwinism harder than boys,' is not a quotation but was suggested by a remark of my friend and relative President Orton [the president of Vassar]. I changed – travestied if you please – his curt saying into the one above to express my own opinion, which is the reverse of his. At least, I find that the famous theory is seized more greedily by the girls than by the boys." "Co-education," *The Woman's Journal*, 5 September 1874.

[29] Edward H. Clarke, *Sex in Education, or a Fair Chance for the Girls*, 5th ed. (Boston: Houghton, Mifflin, 1873). The first edition also came out in 1873. For biographical information on Clarke, see Howard A. Kelly and Walter L. Burrage, *American Medical Biographies* (Baltimore: Norman, Remington, 1920): 225-226; Thomas Francis Harrington, *The Harvard Medical School: A History, Narrative and Documentary* (New York: Lewis, 1905): 868-871. For similar arguments, see also T.S. Clouston, M.D., "Female Education from a medical point of view," Part I, PSM 24 (December 1883): 214-228; Clouston, part II, PSM 24 (January 1884): 319-334; A. Hughes Bennett, M.D., "Hygiene in the Higher Education of Women," PSM 16 (February 1880): 519-530.

affecting steady, persistent mental application" was followed by a heated debate during which a majority of the women challenged his views about the connection between higher education and female illness.[30]

To clarify and expand his points, Dr. Clarke published *Sex in Education*, which became one of the most frequently debated and influential works of the 1870s, drawing attention from scientific and medical authorities, the popular press, and women's rights activists.[31] It was the first popularly read treatise to apply Darwinian gender paradigms to the woman question and to suggest behavioral changes on behalf of evolution. By linking female accomplishment to female malaise, and by tying both to evolutionary progress, this book helped set the tone for debates about the science of gender for the rest of the century. As historians Mary Roth Walsh and Rosalind Rosenberg have documented, Clarke's book was nothing short of a national phenomenon. *Sex in Education* went through seventeen editions in thirteen years; it was reviewed in prestigious national periodicals, including *The New York Times*, *The Nation*, and *Popular Science Monthly*; and countless women read it or were evaluated according to its standards. At the newly co-educational University of Michigan, 200 copies reportedly sold in one day. Future Bryn Mawr President M. Carey Thomas recalled the anxiety of going to college in the age of Edward Clarke: "We did not know when we began whether

[30] Abby May, "Work Committee," in *Report of the Annual Meeting of the New England Women's Club*, 31 May, 1873 (Boston: Rand, Avery, and Company, 1873). HOW, reel 940.

[31] For an excellent study of the controversy regarding *Sex in Education*, see Mary Roth Walsh, *"Doctors Wanted: No Women Need Apply:" Sexual Barriers in the Medical Profession, 1835-1975*," (New Haven: Yale University Press, 1977): 119-135. See also Cynthia Eagle Russett's *Sexual Science* and Rosalind Rosenberg, *Beyond Separate Spheres.*

women's health could stand the strain of education. We were haunted in those days by the clanging chains of that gloomy specter, Dr. Edward Clarke's *Sex in Education*."[32]

Clarke was inspired to turn his attention away from eyes and ears and towards female physiology by the debate over whether or not to admit women to Harvard, which raged during the early 1870s. Like many of his colleagues, Clarke opposed women's entry into Harvard's classrooms. He based his objections to female education on the Darwinian worldview which insisted that reproduction was the most significant human endeavor and that sex differentiation was essential to evolutionary progress. Darwin's theories were ideal ballast for Clarke's opposition to female education, and they provided his arguments with scientific authority and prestige.

In Clarke's era, the barrier between science and medicine was porous. Many men thought of themselves as both doctors and scientists. Consider, for example, Clarke's associate Dr. Silas Weir Mitchell, whose *Wear and Tear, or Hints for the Overworked* (1872) he quoted numerous times in *Sex in Education*. Mitchell, too, was deeply concerned about women undertaking "forced and continued study at the sexual epoch," but he is best known for developing the famous "rest cure" prescribed to Charlotte Perkins Gilman and many others for treatment of neurasthenia, or what we might call depression.[33] In *Fat and Blood and How to Make Them* (1878), he recommended that

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[32] M. Carey Thomas, "Present Tendencies in Women's College and University Education," *Educational Review* 25 (1908): 68, quoted in Walsh, *"Doctors Wanted,"* 124, n. 36. For a biography of M. Carey Thomas, see Helen Lefkowitz Horowitz, *The Power and the Passion of M. Carey Thomas* (New York: Alfred A. Knopf, 1994).

[33] For an excellent study of the "neurasthenia" epidemic, see Ann Douglas Wood, "The Fashionable Diseases": Women's Complaints and Their Treatment in Nineteenth-Century America," *Journal of Interdisciplinary History* 4 (Summer 1973): 25-52. See also, David Schuster, "Neurasthenia and Modernizing America," *Journal of the American Medical Association* 290, 5 November 2003, 2327-

doctors prescribe the rest cure, which consisted of removing the patient (almost always a woman) from all mental stimuli and placing her in the hands of a physician in a hospital setting where she would rest in bed for six to eight weeks, have frequent massages, and consume a high fat diet.[34] Gilman later recalled that this treatment nearly made her go insane, and she wrote "The Yellow Wallpaper" in protest of it.[35] When he wasn't chronicling female malaise, Mitchell was attempting to decode the evolutionary links between frogs, snakes, turtles, and birds. He even corresponded with Darwin about some of his findings.[36] No doubt, his familiarity with evolutionary principles informed his views on female illness, and vice versa.

While Clarke himself was not an amateur evolutionist, his professional life, associates, and publications were very much immersed and invested in the language and tenets of Darwinian evolution. Throughout the 1870s and 1880s, articles about Darwinian evolution permeated medical and scientific journals, conferences, and professional literature – and most doctors read scientific as well as medical research because the two fields were much more closely related than they are today. Indeed, it is hard to imagine *Sex in Education* being written the way it was or having the impact it did were it not for the scientific and cultural climate created by Darwinian evolution in

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2328; Tom Lutz, *American Nervousness, 1903: An Anecdotal History* (Ithaca: Cornell University Press, 1991); and F.G. Gosling, *Before Freud: Neurasthenia and the American Medical Community, 1870-1910* (Urbana: University of Illinois Press, 1987).

[34] S. Weir Mitchell, *Fat and Blood, And How to Make Them*, 2nd ed., (Philadelphia: J.B. Lippincott, 1878, reprint, edited and introduced by Michael Kimmel, New York: AltaMira Press, 2004), 111-112 (page citations are to the reprint).

[35] Charlotte Perkins Gilman, "Why I Wrote the Yellow Wallpaper," *The Forerunner* 4 (October 1913), 271.

[36] See Mitchell's letters (1861-1868) to Jeffries Wyman regarding his experiments in evolutionary science and correspondence with Darwin, Papers of Jeffries Wyman, series 12.2, folder 1. CHM.

general and by *The Descent of Man* in particular. *Sex in Education*, then, was one of the ripples of the tidal wave of the *Descent*.[37]

Clarke specifically drew on the popular evolutionary theory that linked female menstruation with decreased mental capacity and energy. Darwin claimed that males naturally varied more than females because females exerted most of their energy forming their ova, and Herbert Spencer popularized the idea that ovulation was taxing on women. Spencer elaborated on this by applying Hermann von Helmholtz's conservation of energy theory to the human body. According to this principle, energy channeled in one direction was unavailable for other functions. Clarke was deeply influenced by these ideas and argued that higher education unfit women for reproduction because women's bodies and minds could not develop simultaneously.[38] As Clarke explained, "the muscles and the brain cannot *functionate* in their best way at the same moment."[39] If one spent too much time engrossed in deep thought, for example, one's muscles were not likely to be well-developed and one's digestion might even suffer. This theory was particularly applicable to the development of secondary sex characteristics, a burgeoning area of interest after the publication of the *Descent*, because the process of sexual maturation was considered to be extremely taxing on females. In "The Psychology of Sex," Spencer argued "a somewhat earlier arrest of individual development in women than in men is necessitated by the reservation of vital force to meet the cost of reproduction."[40] Here, he posited the

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[38] According to Cynthia Eagle Russett, Spencer was the first to apply Helmholtz's theory to human development. See *Sexual Science*, 118.

[39] Clarke, *Sex in Education*, 40.

[40] Herbert Spencer, "Psychology of the Sexes," 32.

struggle between "growth and reproduction" on which Clarke elaborated. According to Clarke's model, women had to choose between developing themselves as individuals and giving birth to healthy offspring. Thus, higher education unfit women for motherhood by rerouting energy to their minds and depriving their bodies of the resources necessary to develop and menstruate in a healthy fashion.

To Clarke, the link between female education and ill health was largely chronological. As he was quick to stress, it was not that women lacked the mental capacity to learn – by Clarke's time many women had attained advanced degrees and excelled in professions – the problem was that higher education coincided with the crucial, formative years in a girl's physical life, approximately ages 14-19, and studying detracted from their physical development. If a girl was to make a successful and healthy transition to womanhood, or more specifically motherhood, she had to pass through these delicate years paying special attention to her reproductive organs and menstrual cycles. Any strenuous mental exertion during girls' developmental years came at the expense of their reproductive potential. And the cost was high.

Throughout *Sex in Education*, Clarke warned of the perils that awaited girls who failed to grant ample attention to the development of their menses, including disruption of the menstrual cycle, failure of reproductive organs to develop properly, nervousness, invalidism, hysteria, weakness, and recurring illness. Worse still, women and men who ignored their physical development risked becoming more like the opposite sex. In Clarke's writing, we see the specter of the mannish, unsexed woman that has haunted progressive women for centuries. When the reproductive system was thwarted by

female's lack of attention to it, "[this lack] not only substitutes in her case a wiry and perhaps thin bearded masculineness for distinctive feminine traits and power, making her an epicene, but it entails a variety of prolonged weaknesses, that dwarf her rightful power in almost every direction."[41] If women refused to change their ways, Clarke warned that a third gender would evolve: a sexless women, which he named "agene" and equated with "the sexless class of termites."[42] Those women who soldiered on in spite of the risks, according to Clarke, would eventually develop "less adipose and more muscular tissue. . . , a coarser skin, and, generally, a tougher and more angular makeup. . . a corresponding change in the intellectual and psychical condition, -- a dropping out of maternal instincts, and an appearance of Amazonian coarseness and force."[43] While education might temporarily benefit women's minds, Clarke insisted it was ultimately injurious to their bodies and accomplished at the expense of their future offspring.

Clarke's antidote for "identical co-educational" institutions, including state universities in the West and women's colleges that taught women according to male standards, was to design an educational system that accentuated biological gender differences in both form and content. Specifically, Clarke recommended overhauling educational practices to suit the "periodicity" of females and the "persistence" of males. According to this plan, boys and girls should not be educated together, required to learn the same things or forced to abide the same schedules.[44] Instead, he suggested "*special*

[41] Clarke, *Sex in Education*, 44.
[42] Ibid., 93.
[43] Ibid., 92-93.
[44] Ibid., 122.

and appropriate co-education."[45] The hallmarks of this new, sex-specific education included: 1) from ages 14-18, girls should not study as many hours per day as boys or exceed four hours a day of mental activity; 2) during every fourth week, girls should enjoy a remission or an intermission of physical and mental activity; 3) girls and boys should be educated separately.

Sex in Education was warmly received in both the mainstream and scientific communities.[46] The *Popular Science Monthly* review enthusiastically declared:

> This little volume breaks the monotony of the woman's rights discussion, and exposes one of its current fallacies – the co-education of the sexes. Whether or not there be sex in mind, Dr. Clarke shows that there is a great deal of it in body, and that this cannot be ignored in the work of education without entailing grave and often fatal evils upon the weaker sex. . . .[47]

The review concluded by recommending that this book "have a wide circulation, and [be] issued in a cheaper form." In an editorial, the editors echoed this favorable assessment and called upon women to "work out a system of mental cultivation adapted to their own natures and needs."[48] *The Nation*, too, favorably reviewed the book and recommended that all teachers and mothers read it.[49]

Clarke's work was also promoted by the eminent British doctor and pioneering psychiatrist Henry Maudsley, from whom Clarke drew inspiration in *Sex in Education*. Maudsley took Clarke's thesis one step further, stressing that there was "sex in mind" as

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[45] Ibid., 146.

[46] Though not all doctors supported his views. Dr. George and Mrs. Anna Manning Comfort provided an appendix of dissenting physicians in *Women's Education and Women's Health, Chiefly in Reply to "Sex in Education,"* (Syracuse: Thos. W. Durston & Co., 1874).

[47] Review of *Sex in Education,* by Edward Clarke, PSM 4 (January 1874): 377-378.

[48] "The Higher Education of Woman," PSM 4 (April 1874): 748-750.

[49] "Clarke's Sex in Education," *The Nation* 17, 13 November 1873, 324-325; "The Co-education Question," *The Nation* 16, 22 May 1873, 349-350.

well as body, a point at which Clarke had merely hinted.[50] Maudsley charged zealous women's rights reformers with alienating and offending their fellow citizens and claimed that physiology had already answered the woman question. Women "would do better in the end," suggested Maudsley, "if they would begin by realizing the fact that the male organization is one, and the female organization is another, and that, let come what may in the way of assimilation of female and male education and labor; it will not be possible to transform a woman into a man."[51] He declared that when the reproductive organs came into activity the brain underwent "a complete mental revolution" assuring the presence of sex in mind. He further explained, "[t]he comb of a cock, the antlers of a stag, the mane of a lion, the beard of a man, are growths in relation to the reproductive organs which correlate mental differences in sex as marked almost as these physical differences."[52] Following Darwin, Maudsley asserted that the laws of sexual selection ensured that men and women had different emotions and intellectual aptitudes. Such differences needed to be recognized and enhanced through education, "the external cause to which evolution is the internal answer." [53] Like Clarke, Maudsley concluded that girls needed to be educated as women, for their jobs as mothers, wives, and helpmeets.[54] Such scientific pronouncements about women's "natural" duties soothed Americans who were

[50] Henry Maudsley, *Sex in Mind and in Education* (New York: James Miller, 1874). See also Maudsley "Sex in Mind and in Education," PSM 5 (June 1874): 198-215. Maudsley quoted both Clarke and S. Weir Mitchell extensively.

[51] Maudsley, *Sex in Mind*, 3.

[52] Maudsley, "Sex in Mind and Education," 202.

[53] Ibid., 202- 203. After this article, the PSM reprinted a rebuttal from the *Fortnightly Review* which offered other explanations for the ill health of American girls and suggested that education and exercise were usually good for them.

[54] For a discussion of Maudsley in relation to Clarke, see Editorial blurb, *The Nation* 18, 28 May 1874, no page.

anxious about the changing patterns of life wrought by mass industrialization, urbanization, and the growth of the women's movement.

Clarke's opponents recognized that the ramifications of his plan extended far beyond schools because he defined "education" broadly as "comprehending the whole manner of life, physical and psychical, during the educational period."[55] What was at stake in these debates, then, was not just female admission to college but whether or not women could or should pursue any interests outside the home. The danger of *Sex in Education*, according to Eliza Bisbee Duffey, one of his most trenchant critics, was that this book:

> . . .is more than it seems to be. It is a covert blow against the desires and ambitions of woman in every direction except a strictly domestic one. The doctor has chosen to attack co-education as a representative of them all. His plan has been a crafty one and his line of attack masterly. He knows if he succeeds in carrying the points which he attempts, and convinces the world that woman is a 'sexual' creature alone, subject to and ruled by 'periodic tides,' the battle is won for those who oppose the advancement of woman – the doors not only of education but of labor and any kind of physical and intellectual advancement are closed against her.[56]

Furthermore, as Dr. George and Anna Manning Comfort pointed out in their response, Clarke's plan would ultimately dismantle female education because "[i]t would be impossible to organize schools in which every pupil is to refrain from study, or from class exercise, for from four to seven successive days in each month."[57] With an uneducated

[55] Clarke, *Sex in Education*, 9.

[56] Mrs. E. [Eliza] B. [Bisbee] Duffey, *No Sex in Education; Or, An Equal Chance for both Girls and Boys, Being a Review of Dr. E.H. Clarke's 'Sex in Education*," (Philadelphia: J.M. Stoddard, 1874): 117-118.

[57] Comfort and Comfort, *Women's Health*, 15-16.

female labor pool, female job opportunities would be greatly diminished and women would be further tethered to home and hearth.

Feminist men and women recognized the threat *Sex in Education* posed to female advancement and organized a powerful counterattack that vastly reshaped debates about women's physiology and menstruation. The most strident responses came from women and men involved in the women's rights movement. Indeed, many of the nation's most famous women rallied in opposition to Clarke, and his name remained a touchstone for opprobrium in women's rights circles for decades. [58] At least four books, one novel, and dozens of articles and speeches were published to refute *Sex in Education*.[59] Many questioned his methods and demanded more evidence; others thought that he had misunderstood menstruation or had no business talking about it in the first place. Above all, women rejected the crass, reductive way in which their bodies and lives were

[58] For example, "How can she hope to do anything or to be anything but the helpless invalid of Dr. Clarke's imagination?" "Dr. Clarkes will not be wanting until healthy women, working at whatsoever their hands or their heads find to do, and working 'persistently,' as they then may without injury to their health, shall give no cause for books like his." Lydia Fuller, "Matters and Things in St. Louis," *The Woman's Journal,* 4 April 1874.

[59] Monograph responses to Clarke included the novel, SOLA (Olive San Louie Anderson), *An American Girl and Her Four Years in a Boy's College*, (New York: D. Appleton and Company, 1878). This was a fictional account of Anderson's experience as one of the first women at the University of Michigan. The narrator had a great time and ended up marrying a classmate. The PSM gave it an unfavorable review because it did not mention what the girl studied or how this affected her health, *Popular Science Monthly* 12 (March 1878): 632. A new edition of this novel has recently been issued, edited by Elizabeth Israels Perry and Jennifer Ann Price (Ann Arbor: University of Michigan Press, 2006). Julia Ward Howe, ed., *Sex and Education: A Reply to Dr. E. H. Clarke's "Sex in Education,"* (Boston: Roberts Brothers, 1874); George Comfort and Anna Manning Comfort, *Women's Education and Women's Health, Chiefly in Reply to "Sex in Education,"* (Syracuse: Thos. W. Durston & Co., 1874): William B. Green, *Critical Comments Upon Certain Passages in the Introductory Portion of Dr. Edward H. Clarke's Book on "Sex in Education,"* (Boston: Lee and Shepherd, 1874); Eliza Bisbee Duffey, *No Sex in Education; Or, An Equal Chance for both Girls and Boys, Being a Review of Dr. E.H. Clarke's 'Sex in Education,"* (Philadelphia: J.M. Stoddard, 1874); Mary Putnam Jacobi, M.D. *The Question of Rest For Women During Menstruation* (New York: G.P. Putnam's Sons, 1886); Anna Brackett, ed., *The Education of American Girls: Considered in a Series of Essays* (New York: G.P. Putnam's Sons, 1874); Antoinette Brown Blackwell, *The Sexes Throughout Nature*, chapter 4; and Elizabeth Cady Stanton, "The Coeducation of the Sexes," in *Papers and Letters Presented at the First Woman's Congress of the Association for the Advancement of Woman*. (New York: Mrs. William Ballard, 1874). SLRI.

dissected by someone with no firsthand experience. As Boston feminist and transcendentalist Caroline Dall wrote, "[w]omen read this essay with personal humiliation and dismay. A certain materialistic taint is felt throughout the whole, such as saddens most of our intercourse with our young physicians. . ."[60] In response to what they considered to be Clarke's outrageous and dangerous assertions, women demanded more female physicians, the right to speak for themselves and their bodies, and a verifiable scientific account of gender difference, not the cobbled together compilation of anecdotes and observations that Clarke offered.

The most common and effective response to *Sex in Education* was to question Clarke's evidence and call for more studies. Ironically, it was Darwin who provided Clarke's detractors with the gold standard of exacting scientific research and evidence that they used to dismantle the theories presented in *Sex in Education*. Thomas Wentworth Higginson, who led the charge against Clarke in the pages of the *Woman's Journal*, wrote, "Darwin offers his basis of facts as modestly and as amply as if he were an unknown man; and proceeds step by step, still fortifying himself, or stating frankly where he is unfortified." In contrast to Clarke, who, "by no means comes up to the recognized standard of science either in the quantity or the quality of the facts on which he bases his argument."[61] Darwin provided Clarke with the theories of biological difference upon which he based his arguments and, conversely, showed Clarke's detractors what comprehensive scientific observation should look like.

[60] Caroline Dall, in Howe, *Sex and Education*, 90.
[61] Thomas Wentworth Higginson, in Julia Ward Howe, ed. *Sex and Education*, 44, 34.

Most powerfully, women countered Clarke's anecdotes of female malaise with the evidence of their own experience. Instead of relying on doctors to speak for them, women queried female college graduates or wrote about their own lives. Nearly all of the respondents noted never feeling healthier than they did in college.[62] Elizabeth Cumings, for one, argued that education kept women mentally and physically healthy and helped them avoid hysteria and other mental disorders.[63] Similarly, many university officials claimed that Clarke misrepresented the situation at their schools where women were doing just fine, in body and in mind. In addition, the *Woman's Journal* presented testimonies from college professors, administrators, health professionals, and female graduates themselves all testifying that, on the whole, college women were healthier than their less educated peers and that, if anything, education and exercise was what kept them that way.[64] One woman suggested that if collegiate women were sickly perhaps their

[62] See, for example, "Testimony from Colleges," in Julia Ward Howe, editor, *Sex and Education*, and Anna C. Brackett, editor, *The Education of American Girls*, which includes essays by leading women, female educators, and those women involved with colleges.

[63] Elizabeth Cumings, "Education as an Aid to the Health of Women," PSM 17 (October 1880): 823-827.

[64] For other responses to *Sex in Education*, see: T.W.H. [Thomas Wentworth Higginson], "The Atlantic Monthly on Scientific Education for Women," *The Woman's Journal*, 30 May 1874; Sarah D'Arcy, "Sex in Education," *The Woman's Journal*, 25 April 1874; Thomas Wentworth Higginson, "Physician and Pedagogue," *The Woman's Journal*, 18 January 1873; T. W. H., "Just What We Want," *The Woman's Journal*, 16 August 1873; T.W.H. "Sex in Education," *The Woman's Journal*, 8 November 1873; T.W.H. "Sex in Education –second paper," *The Woman's Journal*, 15 November 1873; M.G.L., "Sex in Education," *The Woman's Journal*, 27 December 1873; Frances D. Gage, "'Sex in Education' Once More," *The Woman's Journal*, 3 January 1874; Lydia Fuller, "Matters and Things in St. Louis," *The Woman's Journal*, 4 April 1874; T.W.H. "Woman's Education and Health Once More," *The Woman's Journal*, 27 June 1874; T.W. Higginson, "Sex in Education," *The Woman's Signal*, 13 May 1897. See also, "Clarke's Sex in Education," *The Nation* 17, 13 November 1873; "The Co-education Question," *The Nation* 16, 22 May 1873. Interestingly, Reverend L. Clark Seelye, president of Smith College, used Clarke's *Sex in Education* to argue for the importance of single-sex education. He believed that sex differentiation indicated racial progress and, even though his college boasted of offering the first curriculum comparable to that of leading all-male institutions, he believed single-sex education fostered sex differentiation. See, Rev. L. Clark Seelye, "The Need of a Collegiate Education for Women,"28 July 1874 (North Adams: American Institute of Instruction, 1874). Bound in "Official Circulars, 1872-1884," SCA.

illness corresponded with the austere circumstances in which they were expected to study. Unlike their male colleagues who frequently had room and board provided for them, female students had to secure their own, which often necessitated going hungry or taking on additional work for pay.[65] In contrast to the secondhand and often anonymous testimony that Clarke provided, these first-person accounts proved a potent weapon. If Darwin could convince the world that God did not create the world in seven days with the information he amassed while on the Beagle voyage, surely women could marshal enough evidence to persuade the medical and educational establishments that menstruation did not incapacitate them for the majority of their adult lives.

One point on which Clarke and most of his detractors agreed was the inherent difference between the sexes. Clarke and his adherents thought education dismantled gender difference, while his female critics argued that femininity was inviolate. "M.G.L." promoted this idea of immutable gender difference in an article in the *Woman's Journal*. She argued that nothing could alter the "natural spheres" of men and women:

> The one may grow too effeminate, or the other too masculine, but the special sphere remains. In using that word I do not refer to occupation for if a woman finds her capacity as a book-keeper or physician, and a man his as a milliner or nurse I say God speed to both. There is a sphere of womanhood, wifehood or motherhood, which belongs, and always will belong, to Woman, and Dr. Clarke need have no fear of it being lost through abnormal conditions.[66]

[65] "Normal Co-education," PSM 6 (January 1875): 364-36. Here PSM reported on a letter they received from an educational administrator at the Albany Normal School in response to Clarke's *The Building of a Brain* (1874), which reported on female illness at that institution. The writer claimed that Clarke misrepresented the situation in Albany.

[66] M.G.L., review of *Sex in Education, or a Fair Chance for the Girls*, *The Woman's Journal*, 27 December 1874.

Likewise, Caroline Dall argued that sex differences went far deeper than physical traits; they were spiritually-based and increased with time.[67] Dr. Frances Emily White suggested that sex differentiation, while natural, had gone too far as evidenced by women's "increasing dissatisfaction" with her place in life. [68] A few lone voices, such as Eliza Bisbee Duffey, hinted at gender equality, but the vast majority of Clarke's opponents came down on the side of difference and equivalence. [69] To them, the problem was not inherent gender difference but the popular belief that female difference meant inferiority. Thus, they did not set out to overturn ideas about difference, but rather to alter the values society accorded to women's skills and contributions.

While Clarke and his opponents agreed that men and women were essentially different, they disagreed about the definition of "fitness" as it pertained to women and the perpetuation of the human race. Did well educated women uplift the race by virtue of their training and cultivation? Or did education render them infertile? Defining the latter position, Clarke explained, "[i]n our schools it is the ambitious and conscientious girls, those who have in them the stuff of which the noblest women are made, that suffer, not the romping or lazy sort; and thus our modern ways of education provide for the 'non-survival of the fittest.'"[70] For evidence, he referred to several case studies which

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[67] Dall in Howe, *Sex and Education*, 105.

[68] Frances Emily White, M.D., "The Future Relations of the Sexes," PSM 6 (March 1875): 614.

[69] Eliza Bisbee Duffey rejected the notion that women and men were fundamentally different and the emphasis placed on women's maternal functions. She argued that gender was culturally produced. In a later article published in a British women's newspaper, Thomas Wentworth Higginson sounded a louder note for equality than for difference, especially when it came to education. He pointed out that just as it would be absurd to require men and women to eat different food, so, too, was it absurd to suggest they study different things. He suggested, instead, that we educate both boys and girls as "human beings." T.W. H., "Sex in Education," *Woman's Signal*, 13 May 1897.

[70] Clarke, *Sex in Education,* 112.

chronicled the debilitating and even deadly ramifications of female education. In its glowing review of *Sex in Education*, *The Nation* admonished, "[t]he women who are morally and mentally best fitted to perpetuate and improve the race are precisely those who are physically least likely to do so. It is imperative that the American community should be awakened to the gravity of this danger, and be instructed in the means of avoiding it."[71] The danger was so grave that Clarke warned that American men would soon have to import foreign wives to fill the void left by sterile, masculine American women who demanded higher education. In contrast, he claimed that minimally educated, white women were the most "fit." According to the doctor, the women of Syria and Nova Scotia, where he incorrectly reported that they only recently acquired a system of public education, epitomized the qualities of true womanhood. These women were healthy and robust because they were not well educated. To stem the tide of racial decline, Clarke sought to harness education for the production of gender and the reproduction of "the fittest," the white middle class.

Clarke's critics, too, relied on evolutionary fitness to make their case for female education. Eliza Bisbee Duffey, for example, suggested that society let the weak and sickly women die out and "the result will be truly 'the survival of the fittest,' though Dr. Clarke, owing probably to his peculiar ideas concerning womanhood, does not seem to think so."[72] S. Tolver Preston, like Duffey, found scientific proof in *The Descent of Man* that education benefited women and the race. Responding to Darwin's statement that

[71] "Clarke's *Sex in Education*," *The Nation* 17, 13 November 1873: 324-325.

[72] Duffey, *No Sex*, 101. Mrs. Horace Mann also argued on behalf of the fitness of educated mothers in Howe, *Sex and Education*, 59.

were it not for equal transmission of traits men would best women in mental ability to the degree that the peacock overshadowed the peahen in ornamental plumage, Preston wrote:

> This therefore puts the education of woman in a somewhat new light: though in a light probably suspected by some (including, it may be said, the writer) beforehand, on abstract grounds. For this would show, on a reliable physical basis, that one of the chief arguments for the intellectual training of woman must be for the direct benefit of *man*.[73]

Even if one did not support the higher education of women, the idea that perhaps educated mothers produced better sons was a compelling argument.

The Clarke debates also highlighted the extent to which gender was informed by a complicated and protean mixture of religion and science in the 1870s. In discussions about the essence of gender, biblical accounts were never far from the surface, even in ostensibly scientific arguments. Even though Clarke wrote as a scientist and doctor, he drew heavily on religious gender paradigms to buttress his claims of biological gender difference. For example, he reminded his readers that Eve was created from Adam's rib and suggested that American women would profit from "occasionally reading the old Levitical law. The race has not yet quite outgrown the physiology of Moses."[74] Like the ministers quoted in chapter one, Clarke was comforted by the idea of returning to traditional gender roles as outlined in the Old Testament.

In Clarke's era not only were the distinctions between science and religion more murky, but, more importantly, scientists and men of the cloth often shared worldviews that tended to align them politically. They tended to be of the same economic class, educated at comparable schools, and members of the same churches and clubs. While

[73] S. Tolver Preston, "Evolution and Female Education," *Nature* 22 (1880): 485.
[74] Clarke, *Sex in Education*, 93, 127.

late 19th century scientists and ministers may have disagreed about the schedule and origin of creation, by and large, they agreed on the woman question. Indeed, one of the ways that many early evolutionists may have attempted to smooth over scientific differences with their more orthodox peers was to align with them in opposition to women's rights.

Many scientists were quick to stress that evolution did not undermine biblical gender paradigms, as many women had insisted; to the contrary, they contended that evolution provided "scientific" justification for women's subservience along with a rationale for strengthening the gender divide. In an article entitled "Biology and Women's Rights," the author expounded on the similarities between biblical and scientific gender paradigms: "A friend, of original habits of thought, points out that upon man alone was laid the penalty of labor as upon woman the sorrow of child-bearing [the footnote references Genesis 3:16-17]. This is in fact the very same lesson, clothed in theological language, which we learn from biology." According to the author, evolution meant increasing the differentiation between the sexes. Furthermore, he argued, prior to the woman's rights movement all efforts to change labor had been in the area of increased differentiation. Thus, not only did the woman's rights movement run counter to nature, "it is open to the charge of seeking to destroy family life and to constitute a society of individuals," a claim which would have resonated with scientific as well as religious readers.[75]

[75] "Biology and 'Woman's Rights,'" reprinted from *Quarterly Journal of Science* in PSM 14 (December 1878): 209- 213.

Similarly, Clarke's critics blended religious and scientific gender ideals. Following the tenets of natural philosophy, many women countered Clarke's pronouncements about the pathology of female periodicity by arguing that God would not have created a diseased female system.[76] Other women turned to religion for examples of personhood not founded on physiology. Anna Brackett proclaimed "women are a reflection of the Creator;" not as Clarke, Huxley, and Agassiz would have us all believe "merely so many material organs carefully contrived for only one special purpose, and that, the perpetuation of the race."[77] Julia Ward Howe confessed, "[m]ost of us feel compelled to characterize this book [*Sex in Education*] in one aspect as an intrusion into the sacred domain of womanly privacy." She went on to point out that men would not have stood for having their physiology discussed so openly and, for this reason, Clarke's book violated the Golden Rule.[78] While Frances Gage admitted that "nature intended" for women to be protected by "the stronger limbed male," she concluded by reminding her readers that God created male and female in his own image and that the Bible did not mention "a word of a weaker vessel needing Adam's care."[79] William Greene, too, critiqued Clarke from a liberal Christian point of view. In particular, he charged the doctor with reducing humans to animals and reminded him that there were higher callings than reproduction. Echoing earlier nineteenth-century calls for equality based on the Bible, Greene based his claims on the biblical passage which affirmed that in Christ there

[76] See, for example, Howe in Howe, *Sex and Education*, 13-31.
[77] Brackett, *Education of American Girls*, 382-383.
[78] Howe, *Sex and Education*, 7.
[79] Frances D. Gage, "'Sex in Education' Once More," *Woman's Journal*, 3 January 1874.

was no male or female.[80] The transition to evolutionary gender paradigms was jarring to some, and many recoiled at its inherent physicality, preferring to believe that humans were more than flesh and blood. To them, religious gender paradigms, liberally interpreted, provided a more comfortable alternative, but, by the 1870s, it became increasingly hard to maintain the liberal Christian feminist argument (in Christ there was no male or female) in the face of evolutionary evidence establishing the presence of gender differentiation in all living creatures from plants to humans.

Antoinette Brown Blackwell was one of the first observers to comment upon this complicated shift from religious to scientific gender paradigms. The second half of *The Sexes Throughout Nature* (1875) explicitly critiqued Clarke's *Sex in Education,* and, in the final chapter, "The Trial by Science," Blackwell contextualized the coeducation debates in terms of larger changes in thinking about gender. Specifically, she attributed the vogue for studying women's physiology to the broad-based acceptance of evolutionary theory. Spencer, for example, used "modern scientific reasoning" to ground "himself anew upon the moss-grown foundations of ancient dogma."[81] Emphasizing the similarity between scientific and religious views of women, Blackwell trenchantly observed, "[t]heological and logical theories, alike, teach that Man is physically and mentally the greater, Woman the less; he the Ordained or the Evolved superior, she the Heaven-appointed or the Natural-selection-produced inferior."[82] Recognizing the shift in gender paradigms from religion to science and sensing opposition to women's

[80] William Greene, *Critical Comments.* For the biblical passage, see Galatians 3:28.
[81] Blackwell, *Sexes Throughout Nature,* 231.
[82] Ibid., 184.

advancement from both fronts, Blackwell compared the two thought systems. Both essentialized women according to their reproductive function, both assumed male physical and mental superiority, and both romanticized motherhood. Ultimately, however, Blackwell preferred to trust science. Even though scientists like Clarke, Darwin, and Spencer failed to see that evolution offered new estimates of women's abilities, Blackwell blamed the scientists, not science. To date, Blackwell contended, scientific pronouncements about women's inferiority had been based on "great probability" or "preconception," not "sufficient and carefully recorded data."[83]

To counter this dearth of information about women's physiology and experiences, Blackwell led the charge, in word and in deed, for women to become involved in science. Recognizing the revolutionary potential of science, Blackwell largely abandoned her fight for equality on religious terms in favor of equivalence based on science. She turned to science because, unlike religion, science was open to experiment, revision, and verification, by both males and females. Despite the biased scientific pronouncements issued by the "savans," Blackwell still trusted in the scientific method to explain the meaning and scope of gender difference:

> Yet it is to the most rigid scientific methods of investigation that we must undoubtedly look for a final and authoritative decision as to woman's legitimate nature and functions. Whether we approve or disapprove, we must be content, on this basis, to settle all questions of fact pertaining to the feminine economy. In these days, science is testing every thing pertaining to this world and even reaching out towards the next. In physiology, in psychology, in politics, in all forms of social life, it is to Nature as umpire – to Nature interpreted by scientific methods, that we most confidently appeal.[84]

[83] Ibid., 232.
[84] Blackwell, *The Sexes Throughout Nature*, 231-232.

To counter the sexism that corrupted scientific investigation, Blackwell urged women to speak for themselves: "[woman] must consent to put in evidence the results of her own experience, and to develope the scientific basis of her differing conclusions." Blackwell asserted that to determine whether or not women should attend college, women had to construct "the science of Feminine Humanity," a new field of inquiry where "the experience of women must count for more here than the observation of the wisest men."[85] For example, she cited her own 24 years as a student in co-educational facilities and the fact that she had always been in good health.[86]

Galvanized by *Sex in Education,* many women heeded Blackwell's call to speak authoritatively about their bodies. Some women agreed with Clarke's pronouncements and wanted to share them with other women; others wrote to counter his descriptions of female physiology, but all agreed that when it came to women's bodies, women were the ones who should lead the discussion.[87] Dr. Mary Studley, for example, hoped her advice book would help women translate Clarke's ideas into action. According to Studley, "The late Dr. Edward Clarke, when he gave her the fruits of his ripe experience and observation in his book 'Sex in Education, or a Fair Chance for the Girls,' did more to recall her to a just and rational appreciation of her physiological position in Creation than has been done by any modern writer." On behalf of "the educated women physicians of

[85] Blackwell, *The Sexes Throughout Nature,* 224.

[86] Blackwell, *The Sexes Throughout Nature,* 166. See also, Antoinette Brown Blackwell, "Sex and Work- No. 8," *The Woman's Journal,* 20 June 1874.

[87] Several women commented on this factor. In response to Spencer's "Psychology of the Sexes," on which Clarke drew, Sara S. Hennell encouraged women to write in as women, not by their initials as one other correspondent did, and to "look to one another; that is, for the openly-expressed class-feeling which manifestly is the thing that is now called for." Hennell, "Mr. Spencer and the Women," PSM, 4 (April 1874): 747.

to-day," she wrote to persuade women to "respect the peculiar mechanisms of their bodies and cease their attempts to stifle and ignore it."[88]

Marion Harland was also inspired by Clarke to write an advice book for women. After carefully reading *Sex in Education,* she said to herself, "[t]hey have Moses and the prophets. Let them hear them." Clarke opened her eyes and showed her a "mighty class of human beings [women] ignorant of things pertaining to their physical peace; accounting the holiest mysteries of their natures an unclean thing; holding carelessly the sublimest possibilities of their kind; never giving a thought to the awful truth that they control the fate of the coming race." Her book implored women to understand how their bodies worked and focus their energies on proper physiological development of themselves and their daughters.[89] According to Harland:

> It is a disgrace to our civilization that, whereas woman's need of physiological knowledge is pre-eminent -- (essential -- the unprejudiced thinker and observer would declare)-- the practical study of the laws of anatomy and hygiene has been, until recently, confined to medical schools. Even now, as in generations past, the chief foes to the acquisition of such information are women themselves.[90]

On behalf of "civilization," if for no other reason, women needed to become the authorities on their own anatomy. Both Studley and Harland wrote as if they agreed with Clarke about the connection between female education and female malaise, but their experiences as educated, professional women belied this, as did their emphasis on women

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[88] Mary J. Studley, M.D., *What Our Girls Ought to Know* (New York: M. L. Holbrook and Co., 1878), 231. Rare Book, Manuscript, and Special Collections Library, Duke University, Durham, North Carolina (hereafter RBMSCL).

[89] Marion Harland, *Eve's Daughters or Common Sense for Maid, Wife and Mother* (New York: John R. Anderson, 1882), 5-6. *Popular Science Monthly* favorably reviewed *Eve's Daughters* in volume 23 (September 1883): 711. For more information about Harland, see Karen Manners Smith, "Marion Harland: The Making of a Household Word" (Ph.D. diss., University of Massachusetts Amherst, 1990)

[90] Harland, *Eve's Daughters,* 78.

taking control of their own bodies. Harland explained that she wrote her book because "[w]omen can say things to women which we would not bear from men, -- things which men do not *know*." Studley and Harland's books attempted to demystify the reproductive process and encouraged women to take an active role in it.

In addition to her direct response to Clarke, *No Sex in Education*, Eliza Bisbee Duffey also wrote an advice book for women that emphasized her female perspective.[91] According to Duffey, "men have had their say. It is but fitting that a woman should have hers, especially as the woman who assumes to speak does do with an authority man cannot venture to claim." As a woman, wife, and mother, Duffey felt that she had superior qualifications to those "possessed by any man, professional or otherwise." Further emphasizing this point, Duffey used a variant of the word "women" three times in her title: *What Women Should Know, A Woman's Book About Women.* Duffey wrote the book because she had become "exasperated" when "these champions [of woman's sphere] insist upon making this weakness of mind and body constitutional – something inherent in the sex."[92] "Can a natural state be called a state of invalidism," asked Duffey. Healthy women, she countered, experienced no distress during menstruation and "should themselves decide as to their capabilities."[93] She hoped her advice book would be a first step in this process.

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[91] Mrs. E. B. Duffey, *What Women Should Know, A Woman's Book About Women, Containing Practical Information for Wives and Mothers* (Philadelphia: JM Stoddart, 1873; reprint, Sex, Marriage and Society Series, ed. Charles Rosenberg and Carroll Smith-Rosenberg, New York: Arno Press, 1974). Page citations are to the reprint edition.

[92] Ibid., 17-19.

[93] Ibid., 239.

What finally undercut Clarke's argument about the taxing nature of menstruation was the scientific analysis of women's experiences during menstruation conducted by Dr. Mary Putman Jacobi, a lecturer at the Women's Medical College of the New York Infirmary for Women and Children.[94] Due to the popularity of Clarke's book, Harvard University chose the following question as the topic for its Medical School essay competition in 1876: "Do women require mental and bodily rest during Menstruation; and to what extent?"[95] Entrants submitted their essays anonymously, and Jacobi recognized the potential for a judicious outcome. With the help of her colleagues, she surveyed hundreds of women about their menstrual cycles, levels of exercise and activity, and amount of suffering and submitted the resulting essay, "The Question of Rest for Women During Menstruation," to the competition. Out of the 268 women who completed her survey, 94 reported being "completely free from discomfort during menstruation" and 28 said that they suffered only slightly or occasionally. Overall, a majority of respondents did not experience significant discomfort during menstruation. Based on these extensive surveys – the largest of the time – Jacobi concluded that not only did most women not suffer during menstruation, but those who suffered least were the most active, both physically and mentally. Conversely, the women most likely to suffer menstrual pain were those with little formal education or those enrolled in "ornamental" education, such as finishing school, not those women who pursued higher

[94] For an excellent study of Jacobi's career and politics, see Carla Jean Bittel, "The Science of Women's Rights: The Medical and Political Worlds of Mary Putnam Jacobi" (Ph.D. diss., Cornell University, 2003).

[95] Mary Putnam Jacobi, *The Question of Rest for Women During Menstruation* (New York: Putnam's Sons, 1886) reprinted opposite the title page.

education. Jacobi concluded, "*There is nothing in the nature of menstruation to imply the necessity, or even the desirability, of rest, for women whose nutrition is really normal*" (italics in original).[96] Jacobi won Harvard's prestigious Boylston Prize for her entry which discredited Clarke's thesis that women needed to rest while menstruating.

Once her name was attached to her work, however, it was not well received in the scientific and medical community. She had to publish the book version of her essay using her family's own press and money, and many medical and scientific journals reviewed it harshly. Even though Jacobi included 268 survey results in her book, that's 268 more than Clarke, *Popular Science Monthly* dismissed her work for lack of evidence and rebuffed her "hasty generalizations." Ironically, Clarke's work received a glowing review from the same journal despite his comparative lack of evidence. What the *Popular Science Monthly* reviewer objected to most, however, was not the number of survey results but the type of respondents. The review challenged Jacobi's conclusions about the necessity of rest and argued that, whether or not women said they needed to rest, rest was "a panacea instinctively sought" because "it accords also with the universal experience of *medical men* that pelvic pain, or hyper anemia, is quieted by rest, and this is as true of menstrual pain as of any other condition" (my italics).[97] According to *Popular Science Monthly*, the experiences of male doctors trumped those of female patients.

Since the evidence was on Jacobi's side, however, her research ultimately outweighed Clarke's and has stood the test of time. In *The Sexes Throughout Nature*,

[96] Ibid., 227.
[97] Review of the *Question of Rest for Women*, PSM 12 (December 1877): 244.

Blackwell applauded the public for "instinctively recogniz[ing]" that women could speak more authoritatively about their own bodies than could men. She claimed victory for Jacobi, who had made great strides in establishing the science of feminine humanity that Blackwell had long envisioned, and for women in general. As evidence that the tide had turned in their favor, she proudly quoted the *Westminster Review* which noted:

> the doctoresses certainly can appeal to specific personal experiences bearing directly on the question – experiences capable of outweighing a vast amount of the mere reasoning and information at second-hand of their professional brethren; moreover, the doctresses have facilities of intimate and confidential communications from and discussions with their own sex on the subject, yielding information likely to be more copious, more varied, and more exact than is the information obtainable by doctors.[98]

This article concluded that the studies of "Doctress Jacobi," by virtue of her womanhood, must "be more correct, and therefore more reliable," than the opinions of Drs. Clarke and Maudsley.

While Blackwell's celebration may have been a bit premature, Jacobi did have the last word on the question of rest during menstruation as far as Edward Clarke was concerned. She has the singular honor of appearing more prominently in one of his eulogies than he did. C. A. Bartol's funereal portrait of Clarke referred positively to Jacobi's prize-winning essay and reflected that it would be a shame if women "on account of a function of maternity to which millions of her sex are never called, should be debarred from intellectual pursuits for her living and her delight."[99] From Bartol, we also learn that Clarke himself was "[a]n invalid in college, which he had from broken

[98] Quoted in Blackwell, *The Sexes Throughout Nature,* 226-227.

[99] C. [Cyrus] A. [Augustus] Bartol, *The Man and the Physician* (Boston: A. Williams and Co., 1878), 18-19. Courtesy of the Rare Books Collection, Boston Athenaeum.

health to leave, he was yet the first scholar in the incompleted course." Thomas Wentworth Higginson, a classmate of Clarke's at Harvard, also revealed Clarke's health struggles during college in the pages of the *Woman's Journal*, and it has been confirmed by Clarke's biographers.[100] In all his work on female malaise, Clarke never once mentioned his own collegiate ill health or that of the thousands of men similarly afflicted. To him, disease was a female problem.

Jacobi was keen to this subtext of Clarke's argument, and she tackled it in the expanded book form of her essay.[101] Along with her survey data, Jacobi included an analysis of the history of medical thought concerning menstruation which established the novelty of the disease model. Key to her argument was the fact that prior to the discovery in 1845 that the ova spontaneously released once per month most people thought menstruation indicated increased female vitality and power, not disease. Her research further convinced her that menstruation was a naturally occurring process for which the body prepared all month long and that the healthiest women were those who

[100] T.W.H., "Physician and Pedagogue" *The Woman's Journal*, 18 January 1873. This was in response to Clarke's speech at the New England Women's Club, prior to the publication of *Sex in Education*. He reviewed the book in two parts, 8 November 1873 and 15 November 1873. See also Kelly and Burrage, who stated, "Edward was fitted for Harvard College, entering with the Class of 1840. An attack of hemorrhage of the lungs when he was in his junior year compelled him to give up study, and this same weak health proved a hindrance for some years.... His health was much improved though never rugged.... He continued in active practice until assailed by cancer of the intestine, of which he died November 30, 1877, after three years of almost constant suffering borne with extraordinary fortitude." (225-226). See also Thomas Francis Harrington, *The Harvard Medical School: A History, Narrative and Documentary*, volume 2 (New York: Lewis, 1905): 868-871. "He entered Harvard College at the age of sixteen, but was obliged to leave on account of illness, and consequently was not graduated until 1841.... During both college and professional courses Clarke was restricted by his physician to two or three hours of study a day. From this restriction he acquired such unusual powers of concentration that he was able in later life, when teaching, to prepare a new lecture of an hour in less than an hour's time."

[101] In a letter responding to the review of her book in *Popular Science Monthly*, Jacobi clarified that she was not summarizing previous thought on menstruation but "criticizing them; and that an effort is made to replace one of the famous current doctrines of menstruation by another. This effort is, to the intention of the author, the main subject-matter of the essay." Mary Putnam-Jacobi, "The Question of Rest for Women," PSM 12 (February 1878): 492.

exercised and engaged in challenging study or mental work. Jacobi was not alone in her endeavor to depathologize menstruation. Historian Mary Roth Walsh has found over 145 articles written by female physicians during the years 1872-1890, dealing with topics such as "feminine hysteria, hysterectomies, menstrual difficulties, midwifery, and female insanity."[102] Together, the first generation of female doctors worked to overturn the disease-model of menstruation, improve treatment of female disorders, and reinsert female experiences into medical decisions and research.

Ironically, *Sex in Education* not only inspired groundbreaking research on menstruation, it also fueled demands for more female physicians. Elizabeth Stuart Phelps, for one, implored female doctors to go on record opposing Clarke. "Every healthy woman physician knows better [than to believe Clarke]; and it is only the woman physician, after all, whose judgment can ever approach the ultimate uses of the physicist's [sic] testimony to these questions." Phelps explained that girls became invalids when they stopped studying, once they realized they had no options and no longer got to use their brains. She described this process as being "[m]ade an invalid by the change from doing something to doing nothing."[103] Studley and Harland, the two women who wrote advice books to spread Clarke's theories, also believed that women

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[102] Walsh, "The Quirls of Woman's Brain," in *Biological Woman – The Convenient Myth: A Collection of Feminist Essays and a Comprehensive Bibliography,* ed. Ruth Hubbard, Mary Sue Henifin, and Barbara Fried (Cambridge: Schenkman Publishing Company, 1982), 258-259.

[103] Elizabeth Stuart Phelps, in Howe, *Sex and Education*, 130, 136. See also Phelps' novel about science and the new woman called *The Story of Avis* (Boston: J.R. Osgood, 1877). She also wrote a novel about a woman doctor to counter Clarke's claims of female inferiority, see Phelps, *Doctor Zay* (Boston: Houghton Mifflin, 1882). This and other nineteenth-century novels about female doctors are discussed in Bert Bender, "Darwin and 'The Natural History of Doctoresses:' The Sex War Between Howells, Phelps, Jewett, and James," in *The Descent of Love: Darwin and the Theory of Sexual Selection in American Fiction, 1871-1926* (Philadelphia: University of Pennsylvania Press, 1996): 155-194.

needed to better understand their bodies and that female physicians were uniquely qualified to assist in the process. Another woman prophesied that "[w]hen women are permitted to add the light of science and art to their personal experiences and similar organizations, we may look for a healthier race of women."[104] Thus, even though Clarke attempted to promote theories of "natural" female inferiority, his work had several positive consequences for women, including inspiring pioneering research on menstruation, encouraging women to learn about their own bodies and speak authoritatively about their experiences, and garnering support for female physicians.

Clarke himself even came around to the idea of women doctors. In his next book, *The Building of a Brain* (1874), he argued that to build brains properly female medical professionals must play a primary role:

> A necessary and preparatory condition for the building of the best possible brain out of the female organization is to diffuse through the community a knowledge of the physiology of woman. For this, as well as for other purposes, there should be a class of intelligent and well-educated female physicians, who, instructed in the peculiarities and physiological needs of the female constitution, would have exceptional opportunities for spreading among their own sex sound and rational views of female development.[105]

Women's rights activists, including Blackwell, applauded Clarke's apparent change of heart.[106] The *Woman's Journal* praised Clarke's call for more female physicians to

[104] M.B. Jackson, in Howe, *Sex and Education*, 158.
[105] Clarke, *Building of a Brain*, 27-28.
[106] Blackwell, *The Sexes Throughout Nature*, 219-220.

spread "a knowledge of the physiology of Woman" throughout the community and demanded that Harvard open its doors to women so that the work could begin.[107]

Such demands made many male doctors uncomfortable, as Mary Roth Walsh has documented, and male apprehension about female encroachment into obstetrics and gynecology was often expressed in Darwinian terms. *The Philadelphia Medical Times* reported that there was "much consternation in the obstetrical ranks" about women's entry into the field, though they took a long-term, evolutionary view of the development: "Still the world moves, and perhaps some future Darwin may yet chronicle the result of the struggle, and from the 'survival of the fittest' draw a new illustration of the 'descent of man' and the ascent of woman."[108] Male doctors and feminists alike sensed that perhaps women could best care for other women, and after 1890 medical school doors again began to close to women in order to secure the livelihoods of male physicians.[109]

In addition to encouraging women to become doctors and understand their own bodies, Clarke also inspired women to organize. As historian Rosalind Rosenberg has established, *Sex in Education* provided an important impetus for the founding of the Association of Collegiate Alumni (ACA), the forerunner of the American Association of University Women (AAUW), in 1881. Feeling lonely and out of place after graduating from college, Marion Talbot longed for a way to connect with other like-minded women,

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[107] C.C. H., "Bricks Without Straw," *Woman's Journal*, 6 February 1875. (this is a review of Clarke's *Building of a Brain*).

[108] Article 3, no title, *Philadelphia Medical Times* 10, 22 November 1879, 95. See Walsh, *Doctors Wanted*, for an excellent discussion of women's entry into medicine in the late nineteenth century.

[109] Mary Roth Walsh has written extensively about female doctors in America in numerous publications. According to Walsh, to limit further encroachment by female doctors, in the 1890's medical schools set quotas, generally around 5%, capping the number of females they admitted. See, for example, Walsh, *"Doctors Wanted: No Women Need Apply."*

those few who had run the gauntlet of university education and careers in spite of Clarke's warnings. Together with her feminist mother, Talbot contacted other female college graduates across the country and formed the ACA to encourage other young women to attend college and expand opportunities for female graduates. Talbot recalled that one of the most difficult obstacles in pursuing a college degree as a woman in the late nineteenth century had been confronting "the opinion prevalent well-nigh universally, that young women could not, except at a price physically not worth while, undergo the intellectual strain which their brothers seemed to find no strain at all."[110] Many women, including Talbot, were somewhat surprised to have graduated unscathed and even healthy. To document and publicize their first hand experiences, the ACA surveyed its 1,290 members on their health and published the results in 1885. The "Health Statistics of Women College Graduates" proved that higher education did not make women ill; in most cases it sustained and enhanced their mental and physical health. The authors attributed the few reported cases of ill health to emotional distress and the strains of being female in a hostile environment. As another female critic of Clarke pointed out, if women suffered more breakdowns in college than men, perhaps it was because they had to work twice as hard, with little or no financial support, in substandard housing, with no one to cook or clean for them.[111]

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[110] Marion Talbot and Lois Rosenberry, *The History of the American Association of University Women* (Boston: Houghton Mifflin Co., 1931), 116; quoted in Rosenberg, *Beyond Separate Spheres*, 19, n. 39.

[111] Rosenberg, *Beyond Separate Spheres*, 18-27; the ACA report was published as Annie Howes, *Health Statistics of Women College Graduates: Report of a Special Committee of the Association of Collegiate Alumni* (Boston: Massachusetts Bureau of Labor Statistics, 1885). See also, John Dewey, "Health and Sex in Higher Education," PSM 28 (March 1886): 606-615.

With the exception of Rosenberg, previous scholars who have examined the Clarke incident have focused on the negative pronouncements he made about women, not on the overall outcomes of the public debates that resulted from his work. Yes, in the short term, Clarke certainly caused great anxiety among college-age women and set the tone for biased scientific pronouncements about women; but, in the long term, the controversy surrounding his work served as an important organizing event for female college graduates, encouraged open dialogue about the reproductive process, empowered women to learn about their bodies, and challenged the popular perception of menstruation as a periodic disease. After all, Clarke did not emerge victorious in these debates – Mary Putnam Jacobi did. Thomas Wentworth Higginson, for one, proclaimed that he had "never been among those who regretted the publication of Dr. E. H. Clarke's 'Sex in Education.'" To the contrary, in 1875 he declared "[c]ertainly the higher education of Woman, in general, and Co-education in particular have never made greater advances than during the past year."[112]

Clarke, however, was just one of the many scientists with whom women had to contend in the final decades of the nineteenth century. By 1876, Antoinette Blackwell's euphoria over Clarke's turnaround regarding female physicians had faded into cynicism.

[112] T.W.H., "Sex in Industry," *Woman's Journal*, 10 July 1875. An anonymous author also declared victory over Clarke in "The Irrepressible Woman Question," from the *Golden Age*, reprinted in the *Woman's Journal*, 12 June 1875. This article proclaimed: "Dr. Clarke supposed he had put it [the question of the higher education of women] to rest by his 'Sex in Education,' but a hundred tongues broke silence and a hundred pens showed that the argument was two, if not many-sided. . . .It was shown that his generalizations were drawn from exceptional and insufficient data, and failed to represent the real conditions of the case. It was proved that study under proper conditions is the best of all occupations for a growing girl, and that young ladies in well-regulated institutions are healthier and stronger and better developed than those of the same age and class in society. The physician had mistaken disease for human nature."

She likened women's victory against Clarke to defeating a small outpost that the enemy had stopped defending. To her, the enemy was the army of evolutionists who, throughout the second half of the nineteenth century, had been calmly, impassively asserting that female inferiority was an inevitable product of natural and sexual selection. Blackwell cautioned:

> When Dr. Clarke tried to show that women are physically too weak to endure coeducation with you men, then indeed a host of eager writers exerted themselves successfully to disprove his conclusion. A vast array of counter facts were produced in evidence; his newly fledged theory was killed even before it found strength for flight. But Dr. Clarke's position was to the main fortress like a small, unprotected outpost to the principal fortification.. . .It will be quite another matter to meet the growing ranks of Evolutionists upon their own grounds and to reverse their interpretations of admitted essential facts.

To counter these "growing ranks of Evolutionists," Blackwell again urged women to apply their own "feminine standpoint" to the "facts of Nature," which they did in earnest when Clarke's colleague Dr. William Hammond took up the mantle of "natural" female inferiority in the 1880s by declaring that it could be seen in the very structure and size of women's brains.[113]

Helen Hamilton Gardener's Brain

Even though Clarke's specific theory about menstruation faltered, his overall project of linking evolutionary progress to educational reform and the woman question was so appealing that he and others simply shifted tactics. Clarke's next book elaborated

[113] Antoinette Brown Blackwell, "The Savans of the Woman Question," *The Woman's Journal*, 22 July 1876.

on Maudsley's point that sex differences were evident in brains as well as bodies. Clarke wrote *The Building of a Brain* (1874) following the "widespread comment" that *Sex in Education* generated. Clarke hoped that long after people stopped reading his book:

> the discussion which has been started, and the investigations which have been undertaken, concerning the relation of sex to education, will continue, till Nature's fundamental distinctions are practically and permanently recognized in and out of school. Then one great difficulty in the way of solving the 'woman question' will be removed, and more rapid progress in human development made possible.[114]

In *The Building of a Brain,* Clarke slightly modified his recommendations from *Sex in Education*. Now, he suggested that girls, and boys for that matter, not study more than six hours a day and that domestic and technical education would be interfered with only in "exceptional cases." While menstruating, "all girls would require a periodical remission of variable length, from the labor of physical education, such as gymnastics, long walks, and the like; and also all would require a remission from the labor of social education, such as dancing, visiting, and similar offices."[115] Noticeably absent from this list of activities to be avoided were studying and mental exertion. However, his book aimed to convince readers that brains were indeed sexed and needed to be developed along separate male-female educational tracks.

According to Clarke, because male and female bodies differed, so, too, did their brains. Male brains were charged with the "command [of] a ship;" women's brains with the "govern[ence] of a household."[116] Clarke explained, "the organs whose normal growth and evolution lead up to the brain are not the same in men and women;

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[114] Clarke, *Building of a Brain*, 9.
[115] Ibid., 62.
[116] Ibid., 19.

consequently their brains, though alike in microscopic structure, have infused into them different, though equally excellent qualities." Again, Clarke summoned education in the service of evolution; he argued that the best brains were "built by education, or educated evolution."[117] After centuries of appropriate brain development and evolution, Clarke promised:

> hereditary evils [will be] eliminated, century after century, by the survival of the fittest, -- the brain of to-day, compared as an instrument with that brain of the future, fit for use as a god, is as rude and imperfect as the lens of two hundred years ago compared with the microscopes of the present day. It is the duty of our systems of education to evolve such brains.[118]

To evolve these superior brains, education should be guided by physiology and "cultivate the difference of the sexes, not try to hide or abolish it." Fundamentally, then, Clarke's argument in *The Building of a Brain* was the same as in *Sex in Education*, though he gave women slightly more leeway to study and refrained from disparaging comments about manly spinsters.[119] The most significant difference between the two books was that in *The Building of a Brain* Clarke based his argument on the idea that brains were gendered, not on the pathology of menstruation, but he still argued that education should foster sex differentiation.

For his work on the brain Clarke drew heavily on the studies of Dr. Henry Maudsley and Dr. William A. Hammond, a pioneering neurologist with a special interest

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[117] Ibid., 20-21.

[118] Ibid., 44-45.

[119] For a review of *The Building of a Brain*, see PSM 6 (November 1874): 115-117. "Dr. Clarke did the country a service last year, by publishing his little volume entitled 'Sex in Education,' in which he called attention to some physiological points in the school-experience of girls.. ." This book shows how brain building is "deeply complicated with physiological conditions." The review then quoted extensively from Clarke's examples showing the detrimental effects of higher education, especially co-education, on women, giving the impression that they, too, supported the separate education of females on physiological grounds.

in the differences between male and female brains. After treating scores of injured soldiers as Surgeon General of the U.S. Army during the Civil War, Hammond focused his professional attentions on diseases of the mind and nervous system.[120] He became increasingly convinced that there was a link between female education and mental breakdown. As he explained to Clarke:

> It falls to my lot to see a good many young ladies whose nervous systems are exhausted, and thus rendered irritable, by intense application to studies for which their minds are not suited. Only a few days ago a mother brought her daughter to me to be treated for spinal irritation, with all its accompanying nervous derangements; and I find, upon inquiry, that this girl of sixteen, who could not spell correctly, was compelled to study civil engineering and spherical trigonometry, -- subjects not as likely to be of use to her as a knowledge of the language of Timbuctoo. In my opinion, schools such as the one this girl went to do more to unsex women than all the anomalies who prate about the right to vote, and to wear trousers.[121]

Hammond singled out girls' lack of mathematical ability as a telltale characteristic of their inferior minds and explained this ineptitude in terms of brain structure. He argued that education should cater to and enhance gender differences, rather than try to establish an even playing field for boys and girls.

Throughout the 1870s and 1880s, Hammond honed his theory about the differences between male and female brains and claimed to have located the specific structures responsible for female ineptitude in math, along with other inadequacies. He ultimately determined that female brains were structurally different from, and inferior to, male brains in 19 distinct ways, including weighing on average five ounces less

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[120] Hammond served from 1861 till August 1864 when he was removed on account of a scandal. He published a pamphlet in his own defense and the scandal seems to have subsided as no one mentioned it in the 1870s or 1880s. See Samuel Francis, "Biographical Sketches of Distinguished Living New York Physicians," *Medical and Surgical Reporter*, 2 March 1867, 165.

[121] Clarke, *Building of a Brain*, 131-132.

(Hammond claimed "the larger the brain the greater the mental power of the individual") and having less distinct convolutions and thinner gray matter.[122]

These differences in brain structure, Hammond argued, accounted for women's failure to attain intellectual or professional prominence, and he grounded his objections to women's rights on these physiological grounds. He argued that "grave anatomical and physiological reasons demand not only that the progress of the revolution [the women's rights movement] should be arrested, but that, contrary to the ordinary course of procedure in other revolutions, this one should go backward."[123] Women had advanced beyond what their smaller brains were capable of handling. While women's brains were "perfectly adapted to the proper status of woman in the established plan of nature," such brains "would inevitably make the worst legislator, the worst judge, the worst commander of a man-of-war."[124] In short, women were intuitive, not abstract, imitative not original, and emotional not reasonable. Such descriptions of female intellect were common in the nineteenth century, Darwin himself said as much, but Hammond was a pioneer in linking female inferiority to the structure of the brain.[125]

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[122] William A. Hammond, M.D. "Brain-Forcing in Childhood," PSM 30 (April 1887): 731.

[123] William A. Hammond, "Woman in Politics," *North American Review* 137 (August 1883): 138-139.

[124] Ibid., 142.

[125] Though Hammond was most prominently associated with the brain size argument, he was certainly not the only one to advance it. See also Ely Van de Warker, "Sexual Cerebration," PSM 7 (July 1875): 287-301 and his book *Woman's Unfitness for Higher Coeducation* (New York: Grafton Press, 1903). "By sexual cerebration is meant the existence of sex in the emotional and ideo-motor psychical nature of women and men, from which originate per se emotions and states of consciousness which distinguish and give character to the intellection of the sexes. It is sex in mental, as distinguished from sex in physical development." Van de Warker also claimed there were functional and structural differences in male and female brains. For example he cited the larger size of male brains as a reason why all the great developments of civilization had been made by men ("Sexual Cerebration," 287-289). See also, "Relation of Brain-bulk to Intelligence," PSM 14 (February 1879): 551; H.W.B. "Size of Brain and Size of Body," PSM 16 (April 1880): 827-831. G. Delauney, "Equality and Inequality in Sex,"184-192, also mentions

Hammond applied his brain theory to current educational practices and found much about which to be outraged. He found it particularly galling that women's inferior brains had been called upon to learn "spherical trigonometry and differential calculus." According to Hammond, "[t]he attempt to convert a woman into a mathematician is generally very much like trying to make a hare drink brandy and soda."[126] Hammond explained that all children were forced to study too much and learn too many subjects at the same time. This system was especially pernicious for girls. "It is the height of absurdity to attempt, what is so often attempted at the present day, the education of girls according to the same method as that pursued for boys, and giving them almost identical studies," Hammond concluded. [127] Ten years after women beat back Clarke's challenge to female education, they were faced with an analogous argument based on the weight and structure of their brains.

For as long as Hammond had been expounding on the differences between male and female brains, women had been responding to him in the pages of women's rights journals and the mainstream press, and from the podiums at women's rights

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brain size as evidence of male superiority. J.P.H. Boileau, "Brain-weight and Brain-Power," PSM 22 (December 1882): 172-174. Miss M.A. Hardaker proposed that the only way to determine whether or not women's inferiority was temporary or permanent was to "attack [the question] upon its physiological side," "Science and the Woman Question," 577. Nina Morais responded to Hardaker in the next issue: "A Reply to Miss Hardaker on the Woman Question," PSM 22 (May 1882): 70-78; see also Mrs. Z. D. Underhill, "A Premature Discussion," PSM 22 (July 1882): 376-378. For secondary sources on the brain size controversy, see Anne Fausto-Sterling, "A Question of Genius: Are Men Really Smarter than Women?" in *Myths of Gender: Biological Theories About Women and Men* (New York: Basic Books, 1985): 13-60; Cynthia Eagle Russett, *Sexual Science*; and Kathi Kern, "Gray Matters: Brains, Identities, and Natural Rights," in *The Social and Political Body*, ed. Theodore R. Schatzki and Wolfgang Natter (New York: The Guilford Press, 1996), 103-122. See also Janet Sayers, *Biological Politics: Feminist and Anti-Feminist Perspectives* (New York: Tavistock Publications, 1982).

[126] Hammond, "Woman in Politics," 143.

[127] Hammond, "Brain-Forcing," 731-732.

conferences.[128] Hammond had raised their ire not only through his statements about brain size but also through his opposition to suffrage and his characterization of women's rights activists as "short-haired women and long-haired men" who were "disappointed in their efforts to get husbands or wives, or else unhappy in their domestic relations."[129] Throughout the 1870s, Antoinette Brown Blackwell, Elizabeth Cady Stanton and other women denounced Hammond and his theory that brain size was a measure of intelligence.[130] Blackwell, for instance, argued that men's brains were only bigger because they needed to control men's larger bodies, and that women made up for their

[128] The earliest feminist reply to Hammond was printed in May 1868. M.C.A. "A Woman's Letter from Washington," *The Independent,* 14 May 1868, 1. Several women also responded to his essay "Woman in Politics" in the *North American Review*. See, Mrs. L. [Lillie] D. [Devereux] Blake, Nina Morais, Sara A. Underwood, and Clemence Sophia Lozier, "Dr. Hammond's Estimate of Woman," *North American Review* 137 (September 1883): 495-519.

[129] Hammond, "Woman in Politics," 139.

[130] "Brain size," *Woman's Tribune,* August 1883, 3. This article listed the comparative brain weights of various people, including the fact that the heaviest brain on record was that of an illiterate brick layer, to discount Dr. Hammond's argument. See also, Antoinette Brown Blackwell, "Comparative Mental Power of the Sexes Physiologically Considered," paper delivered at the 1876 AAW Annual Meeting, Miscellaneous Organizations Collection, box 10, folder 4, SSC. "Woman's Brain," address of Dr. Kolbenheier before the St. Louis Woman Suffrage Association reprinted in the *Woman's Tribune,* 24 January 1891. Kolbenheir argued that women's brains had been retarded by cultural obstacles and that their request for more rights was a sign of their evolutionary advance. He favored women's education because it would not only return equilibrium to the sexes but also make for better offspring. See also, Antoinette Brown Blackwell, "Sex and Work-no. 6," *Woman's Journal,* 18 April 1874; Elizabeth Oakes Smith, "Biology and Woman's Rights" an essay read at the Woman Suffrage Convention in Washington, D.C., January 10-12, 1879, reprinted in the *Index,* 20 February 1879. Oakes was responding to an article in PSM (Dec 1878) about biological arguments against women including brain size. See also, "Edenic Godliness," *Woman's Tribune,* 11 June 1898. Even the brain-size debates mixed religion and science. This article reported on a Lutheran minister in Harrisburg, Pennsylvania who delivered a sermon in which he argued that "[w]oman was the crowning glory of Edenic Godliness" but "assured his congregation that God had given her a brain weight that was to man's as 45 to 54, and this indicated her divinely intended inferiority." See also, "Women's Brains Again" *Woman's Tribune,* 26 May 1907. "Every little while somebody settles the woman question with the assertion that women's brains are smaller than those of men; ergo, they are inferior." This article was in reference to the recent studies of Dr. Roese of Berlin. "The real contempt for womanhood which underlies these assertions is shown by the conclusion, which is, that Dr. Roese thinks 'the difference in the sexes is due to the fact that the principal duty of women is motherhood, and Nature cannot afford to waste on her either physical or mental powers which are not essential to that function." See also, "Brains and Sex," *The Open Court,* 18 August 1887, 379-380.

smaller brains by having more complex nervous systems.[131] Stanton pointed out that scientific pronouncements about women's brains lacked the scrupulous attention to experimentation and method that characterized other scientific work.[132] Others contended that if brain size did indicate intelligence, elephants would be the leaders of men and giants would rule the planet. These debates did not take center stage, however, until 1887 when Hammond delivered a speech entitled "Brain-Forcing in Childhood" at the Nineteenth Century Club that was subsequently reprinted in *Popular Science Monthly* and other periodicals[133]

Freethinking feminist Helen Hamilton Gardener led the charge against Hammond. She responded to him in the pages of *Popular Science Monthly*, and subsequently published her critique as an essay entitled "Sex in Brain." She charged that Hammond's argument was based on "assumption and prejudice," that the discrepancies between male and female achievement corresponded with opportunity, not aptitude, and that if male and female brains were fundamentally distinct, then, surely, doctors should be able to tell the sex of an infant by looking at its brain. Unable to conduct experiments on human brains herself, Gardener did the next best thing and submitted a list of questions to twenty of the nation's leading brain specialists, all of whom referred her to the world's leading expert on brain anatomy Dr. E. C. Spitzka. Having "previously discovered that even brain anatomists are subject to the spell of good clothes," Gardener

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[131] Blackwell, "Comparative Mental Power of the Sexes Physiologically Considered."

[132] Elizabeth Cady Stanton, "The Disabilities and Limitations of Sex" address given at the 1885 National Woman Suffrage Association convention, reprinted in the *Woman's Tribune*, March 1885.

[133] In addition to being reprinted in *Popular Science Monthly*, Hammond's article received wide coverage. See for example, "Child or System – Which Shall Live?" *Christian Union*, 14 April 1887, 13; "The Tyranny of the School," *Philadelphia Medical Times*, 2 April 1887, 444.

put on her best dress and requested a meeting with the notoriously elusive Dr. Spitzka. Gardener's dress worked, and the two struck up a vibrant exchange that formed the basis of her rebuttal to Hammond.[134]

In particular, Gardener wanted to know if brain anatomists could identify the sex of individuals simply by looking at their brains. Since Hammond placed such emphasis on the size and structural differences between male and female brains, Gardener thought this would be a logical test of his theory. As a further test of environment versus nature, Gardener asked if brain specialists noted structural differences among infants' brains. All the experts informed her that they could not possibly determine the sex of an infant's or an adult's brain simply by looking at it. She then proposed a challenge to Hammond: if he could identify the sex of twenty brains that she provided, she would forever rest her case. Hammond replied that this challenge was preposterous and suggested, instead, that he provide her with twenty thumbs and ask her to identify the sex of their owners. Gardener and Hammond continued to debate each other in the pages of *Popular Science Monthly* throughout 1887, until the editors declared the debate over due to lack of space. Throughout these exchanges, Hammond mocked Gardener and her brain specialists, insinuating that they were figments of her imagination. Gardener responded with more evidence and logical rebuttals to Hammond's anecdotes.[135]

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[134] Gardener, "Sex in Brain," 104.

[135] Helen Hamilton Gardener, "Sex and Brain-Weight," PSM 31 (June 1887): 266-268; Hammond replied with "Men's and Women's Brains," PSM 31 (August 1887): 554-558; HHG replied, "More about Men's and Women's Brains," PSM 31 (September 1887):698-700; Hammond had the final word with "An Explanation," PSM 31 (October 1887): 846.

Though skeptical of scientists, Gardener trusted in the scientific method. Her discussions with the twenty leading brain anatomists confirmed her optimism. Despite the fact that they all opposed the advancement of women, each provided her with the information and evidence she sought. As she explained, Dr. Spitzka:

> does not himself believe in the equality of the sexes, but he is too thoroughly scientific to allow his hereditary bias to color his statements of facts on this or any subject. In the hands of a man who has arrived at that point of mental poise and dignity, our case is safe, no matter what his sentiments might be. Such men do not go to their emotions for premises when it comes to statements of scientific facts.[136]

Gardener trusted women's case with science and encouraged women to look to the scientific method for answers and to hold scientists and doctors to its rigorous standards.

What prompted Gardener to investigate the claim that "there were natural anatomical differences between the brains of the sexes of the human race" was that no one made similar claims about the brains of "lower animals."[137] A firm believer in evolution, she found it incongruous that the brains of humans would develop so unlike those of other species. Furthermore, by establishing that scientists could not distinguish between male and female brains by sight, Gardener bolstered the idea that gender differences were cultural, not biological. Thus, she dismantled Hammond's argument by demonstrating that it did not make sense when applied to the animal kingdom and by distinguishing between scientific fact and speculation.

Gardener's sparring with Hammond made her a hero in women's rights circles, and she was invited to deliver her essay "Sex in Brain" at the 1888 International Council

[136] Gardener, "Sex in Brain," 105-106.
[137] Ibid., 107.

of Women, convened by the National Woman Suffrage Association to commemorate the fortieth anniversary of the 1848 Seneca Falls Convention. Gardener explained that physicians and scientists influenced "the political conditions of women" and that recently "equality of opportunity began to be denied to woman, for the first time, upon natural and scientific grounds." While she understood that these were difficult obstacles to overturn, she implored the women to challenge scientists and doctors. Women "had hailed science as their friend and ally" only to be met with "pseudo-science" that "adopted theories, invented statistics, and published personal prejudices as demonstrated fact." Women had been the victims of misinformation for too long and, thus, "it is very important to learn, if possible, just how far medical science and anthropology have really discovered demonstrable natural sex differences in the brains of men and women, and how far the usual theories advanced are gratuitous assumptions, founded upon legend and fed by mental habit and personal egotism."[138]

After hearing Gardener's "Sex in Brain" speech, Elizabeth Cady Stanton declared: "The paper read last night by Helen Gardener was an unanswerable argument to the twaddle of the scientists on woman's brain. The facts she gave us were so encouraging that I started life again this morning, with renewed confidence that my brain might hold out a few years longer."[139] In fact, after the success of her presentation, Gardener received numerous invitations to address women's groups and became an

[138] Gardener, "Sex in Brain," 100.

[139] Elizabeth Cady Stanton, remarks, *Report of The International Council of Women* (Boston: Rufus Darby Printers, 1888), 431. Copy residing at the CHM. See also "Dr. Hammond and Woman's Brain," *Woman's Tribune*, 15 January 1889. The editors listed all of Gardener's objections to Hammond and encouraged him to accept her challenge. If he refused to do so, the editors declared "we want to hear nothing more from him on the subject of woman's inferiority."

active leader of the National American Woman Suffrage Association (NAWSA) in the 1910s.[140] Gardener's fan base was not limited to her fellow feminists. *The Physicians and Surgeons' Investigator; a Monthly Journal Devoted to the Best Interests of the Profession* reprinted Gardener's speech explaining, "[i]t is with pleasure that we are able to publish the gist of a paper read at the Woman's Council recently held in Washington. The talented young woman has bearded the lion in his den and apparently caused him to draw the den in after him. The investigations set on foot by Miss Gardener open up an entirely new field, in which we hope she will continue her work."[141]

The most significant impact of Gardener's research, however, was not in its immediate reception, but in its later ramifications on the parameters of brain research. Most galling to Gardener about Hammond's argument was that scientists had yet to study the brains of any remarkable women. Instead, they compared the brains of anonymous women who had died in state hospitals or on the streets with those of statesmen, novelists, and other men of international renown. To even the scales, she implored her female audience to consider donating their brains to science:

> I sincerely hope that the brains of some of our able women may be preserved and examined by honest brain students, so that we may hereafter have our Cuviers and Websters and Cromwells. And I think I know where some of them can be found without a search-warrant – when Miss Anthony, Mrs. Stanton, and some others I have the honor to know, are done with theirs.[142]

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[140] In the years preceding the passage of the nineteenth amendment, Gardener, then living in Washington, D.C., was the NAWSA vice-president who facilitated the suffragists' dealings with President Woodrow Wilson and Congress. Her efforts were so instrumental to the amendment's final passage that her fellow suffragists referred to her as their "diplomatic corps." Cora Rigby, "The Diplomatic Corps" written as part of a Woman with a Career series for a newspaper, the original source is not clear from the clip, 2 May 2 1925. Women's Rights Collection, Helen Hamilton Gardener Papers, SLRI.

[141] Reprint of "Sex in Brain," *The Physicians and Surgeons' Investigator; a Monthly Journal Devoted to the Best Interests of the Profession* 9, 15 June 1888, 170.

[142] Gardener, "Sex in Brain," 123-124.

Stanton, for one, heeded the call. Stanton and Gardener pledged to each other that upon their deaths they would donate their brains to science so that researchers might compare the brains of eminent women with those of eminent men.

When Stanton died in 1902, Gardener delivered her eulogy and lauded her dear friend's decision to donate her brain to science:

> it was her earnest wish that her tireless brain, when she should be done with it, should go to Cornell University, that it might serve Science and mankind in helping to arrive at the truth, after death, as it always had done in life.. . .She felt that a brain like hers would be useful for all time in the record it would give the world, *for the first time*, -- the scientific record of a thinker among women… . She felt that the record of her life and work, in so far as it might be stamped in that splendid brain of hers, should be a part of the fine heritage of all women. She wishes to leave it to the world as her last and holiest gift.[143]

That Stanton, the intellectual leader of the nineteenth-century women's rights movement in the U.S., chose to make her brain her final statement on the subject of women's status shows just how far the terms of debate had shifted from when she began her quest in 1848, armed with the Constitution and the Bible. By 1888, the year Gardener and Stanton made their pact, it was no longer enough for women to interpret the scripture and the law; they had to counter science with science and provide the evidence of their experiences and even their bodies.

Stanton's family refused to fulfill her bequest, however, so we will never know what secrets her brain might have revealed. Determined that her last wish be fulfilled, Gardener twice amended her will to preclude meddlesome heirs from derailing her plans. She succeeded. When Gardener died in 1925, her brain went immediately to Cornell

[143] Helen Hammond Gardener, Eulogy for Elizabeth Cady Stanton, reprinted in the *Woman's Tribune*, 22 November 1902.

University's brain collection, where it remains today.[144] In her will, Gardener explained her wishes:

> Having spent my life in using such brains as I possess in trying to better the conditions of humanity and especially of women, and having many years ago agreed to will my brain to Cornell University (at their request), I hereby confirm that bequest, provided a depleting illness or some special brain disease shall not have produced such brain disintegration as to render it no longer 'representative of the brains of women who have used their brains for the public welfare,' as was stated in the request of Cornell as the reason for wanting it . . . . If my brain can be useful to women after I am gone it is at their service through Cornell.[145]

As Gardener hoped, her brain did what her pen could not: it established once and for all that her brain had not been handicapped by her gender. Under the headline "Woman's Brain Not Inferior to Men's," the *New York Times* declared that Gardener's brain "posthumously substantiated her life-long contention that, given the same environment, woman's brains are the equal of man's."[146]

Even though the *New York Times* declared there was no sex in brain, that was not what the extensive study of Gardener's brain actually revealed. Dr. James Papez dissected Gardener's brain and published his findings in the *American Journal of Physical Anthropology*. To modern readers, his fifty-page report contains so many measurements, comparisons, and qualifications –he literally dissected every millimeter of Gardener's brain – that his whole project seems absurd. For example, Papez found that

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[144] For a history of brain collections, including Cornell's, see Brian Burrell, *Postcards from the Brain Museum: The Improbable Search for Meaning in the Matter of Famous Minds* (New York: Broadway Books, 2004), though he does not mention Gardener.

[145] Helen Hamilton Gardener, Last Will and Testament, also reprinted in a funeral booklet (p. 27-28), Women's Rights Collection, Gardener Papers, SLRI.

[146] "Woman's Brain Not Inferior to Men's," *New York Times*, 29 September, 1927, 1. See also, "Woman Wills Brain for Research Work," *New York Times*, 4 August 1925, 1; and "Says Brain Bequest Has Been Fulfilled," *New York Times*, 5 August, 1925, 3.

Gardener's brain had a lower "precuneal index" than the average female, whose precuneal index is lower than the average male's, but that she had a "remarkably high" occipital index. Ultimately, however, "the differences in the size of the medial frontal region in the two sexes is about .9 and is not sufficient to explain the difference that exists between the precuneal and occipital indexes of the two sexes."[147] But to Papez the message was clear.

In this maze of figures, in which some women exceeded some men some of the time, but not always, and vice versa, Papez determined that Gardener's brain was in fact highly developed, in correspondence with her many achievements, and that "sex differences [were] exhibited to a lesser degree than in other female brains."[148] He did not proclaim the absence of sex in brain; he simply found Gardener's brain to be less-sexed than those of other females. To substantiate this claim, Papez often relied on assumptions about class. For example, he reported that Gardener's "postcentral gyrus" was well developed, as was common "in the brains of the higher class."[149] Furthermore, Papez drew insight from her race and genealogy, noting "she has in her ancestry two eminent lines of descent through Cromwell and Calvert (Baltimore) families. It is evident that a great mental talent resided in these families who combined the bloods of the Anglo-Saxon and Celtic races – a talent which was possibly inherent in her particular mental structure."[150] As a descendent of Lord Baltimore and Cromwell, of course Gardener's

[147] James W. Papez, "The Brain of Helen Hamilton Gardener," *American Journal of Physical Anthropology* 11 (October 1927): 29-79. Quote is on 48.
[148] Ibid., 75.
[149] Ibid., 39.
[150] Ibid., 32.

brain would be highly civilized and intelligent. Papez's report tells us as much about his views on race and class as it does about the brain of Helen Hamilton Gardener.

The idea that brains could be raced and classed, as well as sexed, would have appealed to Gardener, too; for in many ways what she and Stanton hoped to do was align themselves with their elite white male peers and distance themselves from poor women, female immigrants, and women of color. In disputing Hammond's findings they were not saying that the brains of hospital "pick-ups" had been judged incorrectly, or that physiology was not destiny; they were objecting to the fact that *their* brains had not been studied. Gardener rejected the "pseudo-scientific" studies of gender but also the idea that all women were the same. Race and class, then, played an important part in Gardener's bequest. What Gardener and Stanton wanted to establish with their brain donations, as well as with the campaign for educated suffrage, was that they had more in common with their well-educated Anglo male peers than with recent female immigrants or African American women. Thus, they were not attempting to overthrow the hierarchical ladder of civilization based upon evolutionary notions of race and gender that was so frequently invoked by scientists and anthropologists, but to argue that they had been placed on the wrong rung.[151]

Furthermore, that the *New York Times* matter-of-factly declared the potential equality of men's and women's brains testifies to the ways in which the cultural climate surrounding the biology of gender had changed in the forty years since Gardener embarked on her ground-breaking study of brains in the 1880s. In the 1870s, the *Times*

[151] For further analysis of Gardener's brain donation, see Kathi Kern "Gray Matters."

had recommended that all women study Clarke's findings about the pathology of menstruation, but by 1925 biological determinism had lost sway. In 1909, scientist Franklin Mall effectively refuted the "brain weight" theory of intelligence by doing what Gardener had proposed all along: studying the brains of infants.[152] Around the same time, pioneering female social scientists, the first generation to receive Ph.D.s, began to dismantle public faith in the idea that biology was destiny by establishing the significant roles culture and environment played in shaping individual lives.[153]

If the brain weight theory had long since been discredited and if the next generation of women had taken up the cause of gender socialization, why, then, did Gardener still feel compelled to donate her brain to Cornell in 1925? After all, nearly 40 years had passed since the publication of "Sex in Brain." During this time, Gardener had remarried, traveled the world, played a key role in the passage of the 19th amendment, and been the first woman ever appointed to the powerful U.S. Civil Service Commission. Why did she still think donating her brain to science was so important? Perhaps it was

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[152] Both Fausto-Sterling and Rosenberg attribute the demise of the brain weight theory of intelligence to Franklin Mall's 1909 study. See Fausto-Sterling, *Myths of Gender,* 38 and Rosenberg, *Beyond Separate Spheres*, 104-105. Franklin Mall, "On Several Anatomical Characters of the Brain said to vary according to race and sex, with especial reference to the weight of the frontal lobe," *American Journal of Anatomy* 9 (1909). Mall attempted to determine the sex of brains simply by looking at them, as opposed to previous studies which knew the sex of the brain and then looked for distinguishing features. Cynthia Eagle Russett establishes that Mall's work actually grew out of the studies of Alice Lee, a graduate student of Karl Pearson (Russett, *Sexual Science*, 164-165). Alice Lee, "Data for the Problem of Evolution in Man. A First Study of the Correlation of the Human Skull," *Philosophical Transactions of the Royal Society of London* 69 196A (1902); quoted in Russett. See also, Rosaleen Love, "'Alice in Eugenics-land': Feminism and Eugenics in the Scientific Careers of Alice Lee and Ethel Elderton," *Annals of Science* 36 (March 1979): 145-158.

[153] Charlotte Perkins Gilman also rejected the idea that the brain was a "secondary- or even tertiary—sex-characteristic." She argued that male brains were better developed simply because men used them more than women. Furthermore, she contended that brains were a "race characteristic" not a "sex one." Like Gardener, Gilman was invested in establishing that white women were the equals of white men, not in building solidarity among women across race and class lines. See, Charlotte Perkins Gilman, "Our Brains and What Ails Them," *The Forerunner* 3 (September 1912): 245-251. Gilman will be further discussed in chapter 4.

because scientific claims about the biological inferiority of women set the tone for the debates over women's rights and shaped the thinking of those women's rights activists who came of age at the end of the nineteenth century. Gardener's feminism was forged in this cauldron of biological gender difference, and she understood that the best way to fight science was with science. Throughout her lifetime, she witnessed a rash of scientific theories of gender difference come and go, often masking the same conclusions in new studies. Perhaps she suspected that Hammond's theories might one day be resurrected in new garb. If so, she understood that the most important legacy she could leave the movement to which she dedicated so much of her life was not her speeches and books, or even the records of her vital suffrage activities, but her brain.

Greater Male Variability

The idea that brains could be identified and classified according to race, ethnicity, class, and sex survived the dismantling of Hammond's brain theory – scientists simply looked for the evidence in different places, for example in the new field of intelligence testing, which itself was grounded in the Darwinian concept of greater male variability. In their studies of menstruation and brain structure, both Clarke and Hammond also sought to confirm the physical evidence of greater male variability. "Greater male variability" was an essential element of Charles Darwin's theory of sexual selection. Darwin argued that over countless generations male-versus-male competition for female mates had caused men to develop more complex and varied physical and mental traits than women, who simply waited to be selected. As Darwin explained:

> Throughout the animal kingdom, when the sexes differ from each other in external appearance, it is the male which, with rare exceptions, has been chiefly modified; for the female still remains more like the young of her own species, and more like the other members of the same group. The cause of this seems to lie in the males of almost all animals having stronger passions than the females.[154]

Darwin's observations about male traits were prescriptive as well as descriptive; they made assumptions about "natural" gendered behavior. Darwin asserted that throughout the animal kingdom, males were more interested in coupling than females. Hence, evolutionary superiority accompanied males' greater sexual vigor.

According to Darwin, variations drove the evolutionary process. Were it not for the slight differences that distinguished one individual from another, animal life might never have evolved beyond the cellular stage.[155] Thus, not only were men more variable than women, they were inherently more vital to evolution and life itself by virtue of these distinctions. Darwin was hardly the first person to study variability or to suggest that men played a more important role in evolution, but by providing a scientific basis of and evolutionary rationale for greater male variability he simultaneously made the theory "fact" and increased its importance within scientific literature.[156]

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[154] Darwin, *Descent* I, 271-272. Variations carried with them assumptions about behavior – namely that males were more passionate, females more coy. For an excellent study of the construction of the "passionless" female before Darwin, see Nancy Cott, "Passionlessness: An Interpretation of Victorian Sexual Ideology, 1790-1850," *Signs* 4 (1978): 219-236.

[155] The theory of greater male variability was widely adopted by evolutionists. See, for example, Professor E.D. Cope, "The Relation of the Sexes to Government," PSM 33 (October 1888): 721-730. He argued that the male was "the author of variation in the species" (722).

[156] For excellent studies of the history of greater male variability, see Anne Fausto-Sterling, *Myths of Gender: Biological Theories About Women and Men* (New York: Basic Books, 1985), especially chapter 2; and Stephanie A. Shields, "The Variability Hypothesis: The History of a Biological Model of Sex Differences in Intelligence," *Signs* 7 (summer 1982): 769-797; see also Cynthia Eagle Russett, *Sexual Science* and Rosalind Rosenberg, *Beyond Separate Spheres*. Prior to Darwin, studies of variability considered it a weakness and, accordingly, attributed it to females. Fausto-Sterling discusses the shift to male variability, as does Havelock Ellis, *Man and Woman: A Study of Human Secondary Sexual Characters*, 4th ed. (New York: Charles Scribner's Sons, 1904), 410-411. See also, Birken, "Darwin and

Darwin was primarily concerned with physical variability, such as men's beards and peacock's plumes, but studies of variability following the publication of *The Descent of Man* took up both its physical and mental manifestations.[157] One study in particular further cemented ideas about the organic basis of male intellectual superiority. In *The Evolution of Sex* (1890), Patrick Geddes and J. Arthur Thomson announced their "catabolic" and "anabolic" theory of sex differentiation. According to this model, adult aptitudes resulted from the characteristic traits of the germ cells. Men were active and variable because sperm swam to impregnate the egg; women were passive and conservative because immobile eggs waited to be fertilized.[158] Like Darwin and other evolutionists, they substantiated these theories with a mix of scientific examples and societal stereotypes: "That men should have greater cerebral variability and therefore more originality, while women have greater stability and therefore more 'common sense,' are facts both consistent with the general theory of sex and verifiable in common experience."[159] Given that their general theory of sex was rooted in "common experience," it is not surprising that this "scientific" theory naturalized traditional Victorian gender roles.

Several women took issue with greater male variability as described in *The Descent of Man* and subsequent evolutionary texts. Antoinette Brown Blackwell and Dr. Frances Emily White, for instance, accepted the main premises of the variability theory

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Gender," 78-80. Birken situates Darwin's theory of greater male variability in the context of political and social thought.

[157] Ellis cited many of these studies in *Man and Woman*, 411-425.

[158] Partick Geddes and J. Arthur Thomson, *The Evolution of Sex*, The Contemporary Science Series, ed. Havelock Ellis (New York: Charles Scribner's Sons, 1897). This book was first published in 1890; page citations are to the 1897 edition.

[159] Ibid, 271.

but disputed the higher values placed on male traits. White conceded that "in the human species, the differences between the sexes are marked" and "the greater size and strength of man are apparent" as were his "greater physical courage and pugnacity."[160] But "before accepting the unmodified dictum of superiority," White suggested that we "inquire what sexual selection has been accomplishing for women during these long periods of man's physical and mental development." Among women's unique traits, White listed beauty, melodious voices, "faculties of observation, comparison, judgment and reason," deeper religious nature, and maternal love. She credited women with the development of the "moral and emotional sides of human nature," which she argued were no less important than the intellectual developments that Darwin attributed to men. [161] Overall, within organic sexual distinction, White saw gender equivalence, not female inferiority. Furthermore, she argued, women would continue to change and evolve, developing their special traits over time, and woman's "sphere" should only be defined by the "kind and degree of development to which she shall attain."[162] In a subsequent letter to the editor of *Popular Science Monthly*, White clarified her position that although "the key to the history of the evolution of the race lies in the distinction of sex," "men and women have become too differentiated in their mode of living, for the physical or mental health of either."[163] Women, White claimed, were "moving on to a better [place in life] – better because higher in the scale of evolution," but men would have to evolve,

[160] White, "Women's Place in Nature," 295.
[161] Ibid., 296-298.
[162] Ibid., 301.
[163] Frances Emily White, M.D. "The Future Relations of the Sexes," PSM 6 (March 1875): 614-615.

too, because "each finds development only in and through the other." According to White, one way for the sexes to continue to evolve together was through co-education.[164]

Blackwell attributed the theory of greater male variability to the fact that most scientists were men. "[T]here must be some unconscious masculine bias in the theoretical portions of many sciences, including heredity," she reasoned. This unconscious bias accounted for the variability hypothesis, Galton's studies of male genius, and other evolutionary explanations for male superiority. Men had found more exceptional traits among males simply because they were preconditioned to look for them and unable to recognize analogous female ones. "Being impelled doubtless by a corresponding feminine bias," Blackwell undertook a comprehensive study of so-called greater male variability and found that in many species the males were more likely than females to have extra appendages, a main indicator of physical variability. But Blackwell contended that Darwin had misunderstood the hereditary mechanisms responsible for such traits. It was not possible, she wrote, that males passed on so many traits exclusively to male offspring. Her research indicated that males inherited most traits from their mothers and vice versa, which "seems to be Nature's method of holding her sexes somewhere upon the same plane physically and mentally." To her, the theory of greater male variability was a misnomer because it devalued both women's mental capacities and their role in heredity. Blackwell concluded, "the evidence more than establishes the law, which by its ceaseless operation, enables Nature to compel her sexes everywhere to rise and fall

[164] Ibid.

together."[165] Like White, Blackwell believed that co-education would foster this equilibrium and that offspring benefited when both parents shared similar traits and habits.

The theory of greater male variability did have significant ramifications for the debates over female education, though not in ways that White or Blackwell would have supported. Simply put, this theory held that mental variety correlated with physical and that men were more likely to be found at both the lower and higher ends of the intellectual spectrum, whereas women clustered around the middle. Women could read the classics or solve an algebraic problem, but they could not develop their own philosophy or mathematical theorem. For evidence, most studies relied on the numbers of men and women who were institutionalized and on the preponderance of "great men" as compared to women, the method pioneered by Frances Galton in *Hereditary Genius*. As W.K. Brooks, an expert on heredity, explained in *Popular Science Monthly*, the female mind:

> is a storehouse filled with the instincts, habits, intuitions, and laws of conduct which have been gained by past experience. The male organism, on the contrary, being the variable organism, the originating element in the process of evolution, the male mind must have the power of extending experience over new fields, and, by comparison and generalization, of discovering new laws of nature, which are in their turn to become rules of action, and to be added on to the series of past experiences.[166]

[165] Antoinette Brown Blackwell, "Heredity" AAW, 1883, 14-16. Miscellaneous organizations collection, SSC.

[166] W.K. Brooks, "The Condition of Women from a Zoological Point of View," PSM 15 (June 1879): 145-155.

These mental differences, Brooks emphasized, did not imply the oppression of one sex by the other, but, rather, racial progress because, like most evolutionists, he believed that sexual differentiation indicated advancement. As a result of these differences in variability and aptitude, men and women were suited for different jobs. Brooks looked to the animal kingdom for analogies and even argued that the male barnacle, which existed solely as a parasite on the body of the female barnacle, was superior to the female because it varied more over the course of its life. As embryos, they started off the same, but over time the male had changed the most, even though these changes included losing limbs, digestive organs, muscles, and nerves. According to Brooks, the "full significance [of the differences between male and female intellect] can be appreciated only in their relation to higher education;" he suggested that women receive "cultural education" and men "technical."[167] Brooks then excused himself from further discussions of the higher education of women and passed on the baton to his colleagues in psychology, "[h]aving traced the origin and significance of sex from its lowest manifestation to a point where it becomes purely intellectual, the biologist may fairly leave the subject in the hands of the psychologist."[168]

As Brooks anticipated, beginning in the 1890s, psychologists took up the study of male variability. A major work to apply Darwinian concepts of secondary sex characteristics to psychology was Havelock Ellis's *Man and Woman: A Study of Human*

[167] Ibid., 152-155

[168] W.K. Brooks, "The Condition of Women from a Zoological Point of View," part 2, PSM 16 (July 1879): 355-356.

Secondary Sexual Characters (1894).[169] Ellis's goal was to assess to what extent sex differences, especially variability, were the result of culture and to what extent they were rooted in biology. After conducting exhaustive research on the topic in biological, anthropological, and psychological literature, Ellis decided that the differences were in fact biological. And for a reason. In the complementarity of the sexes, Ellis believed he had found the evolutionary root of conjugal love and attraction. Thus, sex differences propelled the evolutionary process and needed to be studied and celebrated. Unlike most of his colleagues, Ellis, a committed radical, refused to make political pronouncements based on biological findings:

> It may not be out of place to add that in emphasizing the variation tendency in men, the conservative tendency in women, we are not talking politics, nor throwing any light whatever on the possible effects of women's suffrage. It is undeniably true that the greater variational tendency of the male is a psychic as well as a physical fact, but zoological facts cannot easily be brought within the small and shifting sphere of politics.[170]

Ellis's ambiguous stance on the "woman question," together with his status as an intellectual maverick and pioneering sex therapist, made him an appealing, and in some cases trying, ally for progressive women.[171] Despite a strident challenge from evolutionist Karl Pearson, Ellis's adherence to greater male variability remained a

[169] G. Stanley Hall's *Adolescence; Its Psychology and its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion and Education* (New York: D. Appleton and Company, 1904) is another famous example of evolutionary psychology applied to gender difference. See, Bederman, *Manliness and Civilization*, for an excellent chapter on Hall.

[170] Ellis, *Man and Woman*, 426.

[171] His interpretation of evolution and sexual selection, for example, significantly influenced the feminist thought of both Margaret Sanger and Olive Schreiner as will be discussed in future iterations of this project.

cornerstone of his theories on gender and sex and, consequently, the budding field of psychology in general.[172]

The main flaw in Ellis's argument, as Stephanie Shields has demonstrated, was that when he wrote no reliable intelligence tests existed. To argue that there were more male geniuses and idiots Ellis had to rely on circumstantial evidence –such as the number of eminent and institutionalized men—statistics that did little to establish the intelligence levels of men and women in general. As psychologists took over the study of sex differences from biologists, however, they soon developed more sophisticated methods of intelligence testing in part to determine the extent of male variability. In fact, the theory of greater male variability was central to the development of educational testing as pioneered by Edward Thorndike, a professor of educational psychology at Columbia.[173]

As the practice of standardized testing took off across the U.S. in the 1910s and 1920s, boys did score more frequently at both the high and low ends of the spectrum. The applications of these test results had important ramifications for educational policy. Much like Clarke and Hammond, Thorndike argued that education should correlate to women's particular abilities:

> Not only the probability and the desirability of marriage and the training of children as an essential feature of woman's career, but also the restriction of women to the mediocre grades of ability and achievement should be reckoned with by our educational systems. The education of women for.. . professions. . where a very few gifted individuals are what society requires, is far less needed

[172] For more on Pearson's challenge to Ellis, see Stephanie Shields, "The Variability Hypothesis," 776-779. For a detailed description of Pearson's views on variation, see Karl Pearson, *The Chances of Death and Other Studies in Evolution* (London: Arnold, 1897).

[173] See, for example, Edward L. Thorndike, *Educational Psychology* (New York: Lemcke and Buechner, 1903).

> than for such professions as nursing, teaching, medicine, or architecture, where the average level is essential.[174]

Whether scientists relied on intelligence tests, ideas about menstruation, or brain measurements, they concluded that female education should be tailored to fit, not expand, women's universe and present abilities.

One thing missing from Thorndike's work on variability was serious consideration of the possibility that environment could play a role in one's test results. Thorndike and many of his colleagues were so steeped in biological determinism that the suggestion that there may have been few female philosophers because for most of human history women had not been allowed to read or write seemed preposterous. On the contrary, Thorndike and his predecessors would have argued the lack of eminent women proved, ipso facto, that eminent women did not foster evolutionary progress.

Faith in biological determinism began to erode in the first two decades of the 20th century, thanks to the pioneering efforts of the first generation of female graduate students, especially those working at Columbia and the University of Chicago. In *Beyond Separate Spheres: Intellectual Roots of Modern Feminism* (1982), Rosalind Rosenberg has expertly chronicled these valiant women and their efforts to force the scientific community to acknowledge that one's environment could shape one's opportunities and abilities.[175] A look at the gendered roots of educational psychology and other social sciences is beyond the scope of my study. I would, however, like to

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[174] Edward Thorndike, "Sex in Education," *Bookman* 23 (April 1906): 213; quoted in Rosenberg, *Beyond Separate Spheres*, 90, n. 10.

[175] See also, Rosenberg, *Changing the Subject: How the Women of Columbia Changed the Way We Think About Sex and Politics* (New York: Columbia University Press, 2004).

emphasize that this generation of female social scientists 1) used the scientific method to shake the scientific community's faith in biological determinism; and 2) these women were the ideological descendents of women like Antoinette Brown Blackwell and Helen Hamilton Gardener, who paved the way for them to go to college and graduate school; encouraged women to engage with science; and made scientific intervention a feminist project.

In particular, I would like to highlight the cases of Helen B. Thompson (Wooley), who studied with John Dewey at the University of Chicago, and Leta Stetter Hollingworth, who studied with Thorndike at Columbia. Thompson wrote her dissertation on sex differences in intelligence, emotion, and other mental traits.[176] She surveyed the previous literature, especially Geddes and Thomson's *The Evolution of Sex* which she considered to be the standard, and found it wanting. She claimed that previous studies of male and female variability did not rely on empirical evidence and, often, what evidence they did present did not support the claims it purported to. To correct these oversights, she designed her experiments according to strict scientific standards.

First, Thompson controlled for all other variables, including age, nationality, and social position, so that gender was the only difference between her subjects. Next, she did not tell her subjects the nature of her experiments, and she tested numerous mental skills from motor ability to senses to intellectual reasoning. Her research did confirm some standard assumptions about gender difference – men had better motor ability and women better memories, for example. Overall, however, Thompson's research revealed

[176] Helen Bradford Thompson, *The Mental Traits of Sex: An Experimental Investigation of the Normal Mind in Men and Women*, (Chicago: The University of Chicago Press, 1903).

only slight differences between male and female aptitude and characteristics. She determined that "the latest researches on the question of variability have failed to sustain it." Even though her experiments did reveal some mental differences between the sexes, she compelled her readers to consider the very likely explanation that these differences resulted from the divergent experiences of men and women "from the cradle." "If it were really a fundamental difference of instincts and characteristics which determined the difference of training to which the sexes are subjected, it would not be necessary to spend so much effort in making boys and girls follow the lines of conduct proper to their sex," she reasoned. Thus, Thompson concluded, the future of women was one of "social necessities and ideals, rather than of the inborn psychological characteristics of sex."[177]

Ten years after the publication of Thompson's book, another ambitious female social scientist revisited the theory of greater male variability. Leta Stetter Hollingworth, who began her career in psychology by studying the effects of menstruation on women, was inspired to turn her attention to the question of greater male variability as a result of her experiences as a clinical psychologist.[178] As chief psychologist at Bellevue Hospital in New York City, Hollingworth saw scores of mentally retarded and challenged children on a weekly basis. Her patients were mostly boys referred to her by a variety of social service agencies. This connection forced her to ponder the social roots of institutionalization. In her daily rounds, it occurred to her that perhaps there were more institutionalized males because boys were "less restricted, come more often into conflict

[177] Thompson, *Mental Traits of Sex*, 174, 177, 181, 182.

[178] Leta Hollingworth, *Functional Periodicity: An Experimental Study of the Mental and Motor Abilities of Women During Menstruation* (New York: Teachers College, 1914). Her results echoed those of Jacobi's – menstruation was not a disease and it did not adversely affect women's abilities.

with the law than do girls, and are thus scrutinized and referred to more often by the courts." She also noted that "there seems to be no occupation which supports feebleminded men as well as housework and prostitution support feebleminded women." Previously, the preponderance of institutionalized and eminent men had substantiated popular belief in greater male variability. But, in a series of articles, Hollingworth attacked this reasoning. She pointed out that society had different expectations and safety nets for women than for men and that it was more possible for a mentally handicapped woman to live her life under the care of relatives; thus, the lack of institutionalized women did not necessarily prove that there were fewer female "idiots."[179] If social factors reduced the number of female degenerates, might they also have something to do with the dearth of female geniuses?

To further study this question, Hollingworth began testing physical variability among infants. Even though the belief that physical traits correlated to mental ones was not as firmly held in the 1920s as it was in the 1880s, this was, nevertheless, one of the first empirical studies of male and female variability. Hollingworth found no difference in variability between males and females. To the extent that mental variability existed among adults, Hollingworth cautioned her readers to consider "the established, obvious, and inescapable fact that women bear and rear children, and that this has always meant and still means that nearly 100 percent of their energy is expended in the performance

[179] Leta Hollingworth, "Differential Action upon the Sexes of Forces Which Tend to Segregate the Feebleminded," *Journal of Abnormal Psychology and Social Psychology* 17 (April-June 1922); quoted in Rosenberg, *Beyond Separate Spheres*, 100-101, n. 30.

and supervision of domestic and allied tasks, a field where eminence is impossible."[180] Hollingworth's study convinced her that men who were otherwise diligent researchers could not separate truth from stereotype when it came to studying gender differences. Like Antoinette Blackwell and Helen Hamilton Gardener before her, she decided that the only antidote for this was for women to take up experimental research themselves.

During the 1910's, Hollingworth and Thompson joined forces to dismantle the idea that intelligence was a sex-linked trait. Working together as book reviewers at the influential *Psychological Bulletin*, the two women shaped the field's view of recent work in sex differences. According to Rosenberg, they "tried to provide a picture of the consensus that had emerged by the First World War on the issue of sex differences in mental traits. . . [which was] that intelligence should no longer be considered a secondary sex characteristic."[181]

Thompson and Hollingworth's belief in the mental equality of the sexes was confirmed and further advanced with America's entry into World War I. After 1914, psychologists' interest in gender differences and variability waned as widespread testing of soldiers took precedence. And, as the testing industry grew, the evidence for greater male variability withered. Girls frequently outscored boys, making it difficult to substantiate claims of greater male variability using the latest methods. As Rosenberg

[180] Leta Hollingworth and Helen Montague, "The Comparative Variability of the Sexes at Birth," *American Journal of Sociology* 20 (November 1914): 335-370. Quoted in Rosenberg, *Beyond Separate Spheres*, 102-103, n. 32.

[181] Rosenberg, *Beyond Separate Spheres*, 103.

astutely pointed out, girls' superior test scores, however, did not cause anyone to proclaim that they were naturally the mental superiors of boys.[182]

Interestingly, unlike the Clarke and Hammond debates of the 1870s and 1880s, the "greater male variability" controversy of the early 1900s did not receive much press in women's rights circles. Neither the *Woman's Tribune* nor the *Woman's Journal* commented on it, or on Helen Bradford Thompson and Leta Stetter Hollingworth's pioneering research. Women's rights activists did not actively speak out against Ellis or Thorndike; this task was left to the female social scientists.[183] Perhaps this was because the scope of women's rights activity shifted after 1890 to focus more exclusively on suffrage and because those women most attuned to scientific debates had been forced out of the movement. Or, perhaps it was because, after 1890, the battle for higher education had largely been won, though challenges and obstacles persisted, as Thompson and Hollingworth's experiences and research attested. Nevertheless, Thompson and Hollingworth were the intellectual heirs and literal beneficiaries of Blackwell, Jacobi, Gardener, and the many other women who, in the 1870s and 1880s, assured female access to education and made science a feminist enterprise. Emboldened by Jacobi's findings that college increased the health of women, women went. Inspired by Gardener's claim that they needed to separate pseudo-science from science, they conducted their own experiments and added the evidence of their experiences. Hearing

[182] Ibid., 106-107.

[183] The *Woman's Tribune* did review Ellis's *Man and Woman*. They applauded Ellis for differing "from the timid souls" who opposed female education and advancement but challenged his conclusion that greatness was reserved for men. "Man and Woman," *Woman's Tribune*, 29 April 1905, 31. They contrasted Ellis unfavorably with Lester Frank Ward's gynaecoentric view of evolution, which will be discussed in chapter 4.

Blackwell's call for a science of feminine humanity, they created one. Indeed, "the truth in nature" had become a powerful ally for women.

Conclusions

Prior to the second half of the nineteenth century, women used the Bible and their reputation as the upholders of religious faith as wedges to prop open the door of education. Claiming the right and necessity to read and interpret God's word for themselves, women from Mary Astell to Catherine Beecher demanded access to the tools necessary to read and think critically. Their efforts were, more or less, successful and female seminaries popped up across the United States and England. After the Civil War, however, female seminaries no longer seemed adequate. Women sought the privilege of learning the same things that their brothers learned – the sciences, political philosophy, and economics – fields that were accessible to men and fields that drove the industrial and commercial progress that was so dramatically changing women's lives. For this right, there was no biblical passage for women to call upon.

At the same time, Darwinian evolution, together with the exacting scientific method it popularized, displaced the Bible in both content and method. Scientists and doctors, convinced that sex differentiation was essential to racial progress and that women's secondary status was written on their bodies, sought to bar women from college on the basis of their physiology. To them, maternity was both a causal and compensatory factor in explaining women's intellectual inferiority. In making these scientific pronouncements, however, experts neglected to perform the requisite scientific

experiments. Ironically, then, the national debates over female education prompted by Clarke and Hammond inadvertently increased public support for women's education by highlighting both the strong desire of many women for education and the flimsy excuses on which the opposition rested. Hearing statements that failed to ring true to their experience or hold with what they understood to be the scientific method, women challenged pseudo-science with science.

Accepting the major tenets of evolution and recognizing the scientific method as a valuable tool, women challenged interpretations of sex differentiation and hierarchy that demanded their subservience. Since adherence to the scientific method was the cornerstone of evolution and the sciences which grew out of it, men were ultimately unable to beat back challenges that were scientifically sound. Women responded to scientific "proof" of their inferiority with a mix of religious and scientific answers, but their most effective critique was to demand that science be more scientific. Thus, Darwinian evolutionary theory at once provided a temporary platform from which scientists could question women's mental capacity and a proving ground for women to establish their intellect.

Despite the fact that most scientists applied the theories of sex differentiation from *The Descent of Man* to prove women's biological inferiority, women relied on the scientific method to disprove these arguments time and time again. As early as 1870, women recognized the potential for truth inherent in scientific investigation. Women like Antoinette Brown Blackwell and Maria Mitchell encouraged their peers to seize the opportunity to advance both women's cause and scientific knowledge through conducing

experiments and trusting in science. At the same time, young women flocked to take advantage of Smith College's historic Lilly Hall of Science and other science programs. As a result of women's increasing engagement with science, women, from Mary Putnam Jacobi to Leta Stetter Hollingworth, worked to disprove the shoddy research and hasty conclusions upon which theories of female mental inferiority rested, and in each case they were successful. Helen Hamilton Gardener epitomized this trend by letting her very body speak for itself. Women's interventions in the studies of female periodical disease and intellectual inferiority ultimately pointed out errors in methods and conclusions and caused many scientists to retract or revise their statements and, often times, the public to reverse its beliefs. However, women's acceptance of evolutionary ideas about gender further complicated the tension between claims of difference and sameness within feminist thought. By accepting that sex differentiation was a sign of evolutionary advancement and the hallmark of civilization, white women forsook equality with men and women of all races for equivalence with white men, often at the expense of women of color.

Perhaps most significant, biological challenges to female education galvanized women to speak authoritatively about their bodies, previously a taboo topic in Victorian America. Reading exposés about their menstrual cycles in popular magazines, for example, forced women to draw upon the evidence of their experience to counter theories that they knew to be false. In the process, they encouraged other women to shed the shame that kept them in ignorance of their own bodies. To facilitate this, several women wrote advice and anatomy books, which could be considered 19th century precursors to

Our Bodies Our Selves (1973), the revolutionary medical textbook that is a hallmark of second wave feminism.[184] In teaching women about menstruation and reproduction, these books encouraged women to take charge of their bodies, paving the way for increased female knowledge of and autonomy over the reproductive process.

Finally, even though Darwin himself opposed such efforts, *The Descent of Man* motivated scientists and laypeople alike to think about how they could control the evolutionary process. The first way in which they attempted to do so was by tailoring education, or as Clarke referred to it "the inward evolution," to advance evolution. It is important to think about these debates regarding female education, then, in the larger context of the social applications of evolutionary discourse. Efforts to control female education in the late nineteenth century normalized the idea that people could shape evolution, efforts that generally had to do with producing gender and controlling reproduction. These discussions are the first time in which we see men and women arguing to change or adapt policy in accordance with what they believed to be evolutionary progress – if evolution tended to increase sexual differentiation wouldn't it be better/faster/more expedient to adjust educational practices accordingly? Men and women on both sides of the debates asked, "how can education help us make women who are more 'fit'?" The widespread acceptance of education as a factor in evolution, thus, was a first step in normalizing later proposals for birth control and eugenics. If it was acceptable to control the ways in which people developed and what traits they passed on to their offspring (according to a Lamarckian view), why not study who mated with

[184] Boston Women's Health Collective, *Our Bodies, Ourselves: A Book by and for Women* (New York: Simon and Schuster, 1973).

whom and why? Why not control who was born and when? Since evolutionary science yielded such powerful insights into the biology of gender, it was not long before scientists and laypeople applied it to sex as well.

Chapter Three: Love is a Battlefield: Darwin's Theory of Sexual Selection and New Ideas about Courtship, Marriage, and Reproduction

> "We shall further see, and this could never have been anticipated, that the power to charm the female has been in some few instances more important than the power to conquer other males in battle."[1]
>
> Charles Darwin, 1871

In her novel *My Wife and I; or Harry Henderson's History* (1871), Harriet Beecher Stowe used Charles Darwin's theory of sexual selection to grapple with the challenges of courtship and the origins of heterosexual love. In an attempt to distract herself from obsessing over a male love interest, Eva, a main character, sat down to read her friend Ida's copy of *The Descent of Man, and Selection in Relation to Sex* (1871) only to open right to the section on "sexual selection" at which point she exclaimed, "Oh horrid!" Far from diverting her from thoughts of Mr. Henderson, reading about sexual selection only exacerbated her preoccupation. Eva pondered why Mr. Henderson had been cold to her, and she wished he would explain *The Descent of Man* to her, which she claimed was too complicated and which she feared was anti-religious. Ida, her proudly single and academically-oriented friend, encouraged Eva to remain open-minded and read the book for herself.[2] Like many women in the final decades of the nineteenth

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[1] Charles Darwin, *The Descent of Man, and Selection in Relation to Sex* (1871), introduction by John Tyler Bonner and Robert May, reprint of the first edition, (Princeton: Princeton University Press, 1981), vol. II, 279. *The Descent of Man* was originally published in two volumes, a few months apart. The first volume addressed the development of moral and intellectual capabilities, as well as man's close links with animals. The second was devoted to the theory of sexual selection. Subsequent editions of the *Descent* published the two volumes together.

[2] Harriet Beecher Stowe, *My Wife and I; or Harry Henderson's History* (New York: J.B. Ford and Company, 1871), 321-322. This novel was also published serially in the *Christian Union*. William Leach claims that Stowe wrote "My Wife and I" after being converted to feminism by reading J.S. Mills' *On the Subjection of Women*. See Leach, *True Love*, 118

century, Ida was keen to the new possibilities for gender and sex latent in a progressive interpretation of *The Descent of Man* and sexual selection, its cornerstone theory.

Darwin's main aims in writing *The Descent of Man and Selection in Relation to Sex* were to apply evolution to humans (which he had only hinted at in the *Origin of Species*); establish human and animal kinship (in body as well as in mind); and explain the development of reason, emotion, and civilization by evolutionary, as opposed to religious, means. Such a task proved challenging and often led Darwin to contradict himself as he attempted to construct an evolutionary path, albeit a winding and hesitant one, from protozoa to modern human civilization that explained not only the origin of human life but also its customs, mores, and intellectual development. The mechanism responsible for many of these changes and developments, according to Darwin, was "sexual selection."

Darwin first grappled with "sexual selection" in unpublished writings from the 1840's, and he alluded to the theory in the *Origin of Species* (1859).[3] There, he defined sexual selection as "not a struggle for existence, but . . .a struggle between the males for possession of the females," a sort of corollary to natural selection. He claimed that sexual selection accounted for differences in "structure, colour, or ornament" in species where "the males and females have the same general habits of life."[4] But Darwin's main purpose in the *Origin* was to prove the evolution of species by means of natural selection,

[3] According to Michael Ghiselin, Darwin mentioned sexual selection in both the 1842 and 1844 sketches. Michael Ghiselin, *The Triumph of the Darwinian Method* (Berkeley: University of California Press, 1969), 220.

[4] Charles Darwin, *On the Origin of Species, a Facsimile of the First Edition* (1859) with an introduction by Ernst Mayr (Cambridge: Harvard University Press, 1964), 88-89.

and he devoted only two pages to sexual selection. In the years between the publication of the *Origin* and the *Descent*, however, he puzzled over the persistence of maladaptive traits, traits that conferred no survival advantages to their possessors and, thus, could not be explained by natural selection. Why had traits, such as the peacock's bright plumage, survived?

In *The Descent of Man*, Darwin concluded that maladaptive traits continued to be passed on to future generations simply because the opposite sex found them attractive, thereby increasing the odds that the peacock with the most brilliant plumage, for example, would leave many progeny. Darwin called this process "sexual selection," which referred to the "advantages which certain individuals have over other individuals of the same sex and species, in exclusive relation to reproduction."[5] Darwin clarified that sexual selection only applied to instances in which males and females of the same species were exposed to the same conditions and had the same habits, yet one sex, usually the male, looked very different than the female to whom he displayed his distinctive traits. Male birds, for example, often exhibited inordinately large plumes and tusks, which Darwin reasoned must have appealed to the females (see figures 5 and 6). As one sex (usually the female) repeatedly selected for the desired traits in the other (usually the male), the sexes would differentiate from each other and the desired trait would be passed on to the next generation and exaggerated over time. In short, Darwin believed that sexual selection accounted for the development of secondary sex characteristics and

[5] Charles Darwin, *The Descent of Man* I, 256.

provided a powerful mechanism for the evolution of species.[6] Previous accounts of gender difference had located it in Adam and Eve's behavior in the Garden of Eden, but Darwin forced people to examine gender in evolutionary and biological terms, making traits like male beards and female breasts not mere aesthetic differences but essential markers of sex and important evolutionary agents.

The two main tenets of Darwin's theory of sexual selection were male battle and female choice. In a Darwinian world, males competed with each other for access to females, while females were "coy" and selected the most ornamented and vigorous males. Among humans, however, Darwin posited that women had lost the power of selection during the more "savage" years of human history and men tended to pick the most beautiful and fertile women as mates. He explained:

> Man is more powerful in body and mind than woman, and in the savage state he keeps her in a far more abject state of bondage than does the male of any other animal; therefore it is not surprising that he should have gained the power of selection. Women are everywhere conscious of the value of their beauty; and when they have the means, they take more delight in decorating themselves with all sorts of ornaments than do men. They borrow the plumes of male birds, with which nature decked this sex in order to charm the females.[7]

In modern times, women attracted and men selected. Darwin also suggested that humans take more care in choosing their mates, though he stopped short of advocating eugenics. Even though Darwin argued that women had lost the power of selection, the presence of female choice in the animal kingdom provided an opportunity for feminist interpretations of the theory of sexual selection, as this chapter will demonstrate.

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[6] Darwin increasingly attributed more and more agency to sexual selection. While he first considered it equal in importance to natural selection, he later believed that it was more powerful.

[7] Darwin, *Descent* II, 371-372.

In addition to proposing a scientific rationale for mate choice, Darwin suggested that sexual selection was at least as vital as natural selection to the evolutionary process, but at the time most other evolutionists disagreed (though today its existence and influence have been confirmed). Led by Alfred Russel Wallace, the man whose similar findings pressed Darwin to publish the *Origin of Species* in 1859, many evolutionists argued that what Darwin termed sexual selection could more accurately be ascribed to natural selection, a theory that was also under attack.[8] As Mary Margaret Bartley argues in her dissertation on the history of sexual selection theory, when the *Descent* was published, naturalists were vigorously trying to defend the efficacy of natural selection and even the most ardent Darwinists were reluctant to take on another evolutionary mechanism when the existence of the first had not yet been proven.[9] Between 1871 and 1920, aspects of Darwin's theory of sexual selection -- such as the power he attributed to female choice, his privileging of sexual over natural selection, and his claim that sexual selection accounted for secondary sex characteristics -- were hotly debated and tested experimentally, changing the scope and tenor of scientific and popular discussions of sex and marriage.

[8] For more information on the controversy over sexual selection see Peter J. Vorzimmer, *Charles Darwin: The Years of Controversy, The Origin of Species and Its Critics, 1859-1882* (Philadelphia: Temple University Press, 1970), 191-197; Gertrude Himmelfarb, *Darwin and the Darwinian Revolution* (Garden City: Doubleday, 1962); Michael Ghiselin, *The Triumph of the Darwinian Method* (Berkeley: University of California Press, 1969); and Mary Margaret Bartley, "A Century of Debate: The History of Sexual Selection Theory (1871-1971)" (Ph.D. diss., Cornell University, 1994). For a primary account of the controversies regarding sexual selection, see George Romanes, *Darwin, and After Darwin*, 3d ed. (Chicago: The Open Court Publishing Company, 1901), especially chapter X. Romanes was one of the strongest defenders of sexual selection.

[9] Mary Margaret Bartley, "A Century of Debate."

Previous historians have argued that Darwin's theory of sexual selection was not very influential in the nineteenth century, largely because evolutionists themselves were conflicted about the theory and its relationship to natural selection.[10] But, as Stowe's reference to it demonstrates, as scientists debated the existence and efficacy of sexual selection, the theory and its main tenets trickled down into many facets of American culture including fiction, prescriptive literature, and popular culture, prompting new and

[10] Historian Gertrude Himmelfarb set the tone for historian's dismissal of sexual selection in her landmark *Darwin and the Darwinian Revolution* (1962), though this book is primarily about the *Origin of Species.* She cited recent studies dismissing the importance of secondary sex characteristics in bird, fish, and insect mating, as well as logical incongruities inherent in sexual selection, including the idea that the less attractive might simply mate with less attractive mates and leave just as many progeny as the most attractive (314). According to Himmelfarb, "[i]t was a bold experiment to make so tenuous and hypothetical an idea as the esthetic standards of our apelike progenitors bear the burden of such weighty matters as the evolution of man from the animals and the distinctions of sex and race" (366). See also, Kay Harel, "When Darwin Flopped: The Rejection of Sexual Selection," *Sexuality and Culture* 5.4 (Fall 2001): 29-42. Thanks to the "modern synthesis" of genetics with natural selection and the birth of ethology (the study of animal behavior) in the mid-twentieth century, scientists have widely accepted sexual selection. The theory now constitutes an integral part of evolutionary research, both biological and psychological. Between 1995 and 2006, 125 dissertations have been written on sexual selection in humans, animals, and insects. Michael Ghiselin's influential *The Triumph of the Darwinian Method* was among the first historical works to embrace the theory of sexual selection and devote an entire chapter to it, though his uncritical assessment of sexual selection has been criticized by feminists including Evelleen Richards. See Evelleen Richards, "Darwin and the Descent of Woman" in *The Wider Domain of Evolutionary Thought*, ed. David Oldroyd and Ian Langham (London: D. Reidel, 1983), 57-111. For further information on the historiography of sexual selection, see Mary Margaret Bartley, "A Century of Debate: The History of Sexual Selection Theory (1871-1971)" and Erika Lorraine Milam, "Looking for a Few Good Males: Female Choice in Evolutionary Biology, 1915-1975" (Ph.D. diss., University of Wisconsin, 2006). Milam argues that one reason historians have overlooked the importance of sexual selection between 1871 and 1940 is that they have looked mainly for applications of the theory in animals, not humans where the theory was more frequently applied. See also Bernard Campbell, ed., *Sexual Selection and the Descent of Man* 1871-1971 (Chicago: Aldine Publishing Company, 1972), an edition published to commemorate the 100th anniversary of the *Descent* which also signaled the return of sexual selection. Simon J. Frankel, "The Eclipse of Sexual Selection Theory," in *Sexual Knowledge, Sexual Science: The History of Attitudes to Sexuality*, ed. Roy Porter and Mikuláš Teich (Cambridge: Cambridge University Press, 1994): 158-183. Frankel argues that a major reason for the "eclipse" of sexual selection theory in the early twentieth century was that Julian Huxley, an acknowledged expert on sexual selection, came to believe that natural selection, along with glandular activity, accounted for everything Darwin attributed to sexual selection. Huxley's views, though skewed by his emphasis on studying only monogamous birds, were highly influential in the scientific community.

often frank discussions of sexuality and marriage.[11] Literature provides one window into the pervasive cultural influence of the theory of sexual selection; this chapter will explore several others. In contrast to most previous interpretations, I argue that the fact that scientists debated and tested the theory of sexual selection does not mean that the theory itself lacked influence. Rather, the numerous publications and experiments designed to test, confirm, or discredit sexual selection kept the theory in the headlines, allowing it to permeate the culture and familiarizing the public with its main tenets. Indeed, for nineteenth-century men and women, the phrase "sexual selection" and the title "The Descent of Man" functioned as shorthand for new ideas about gender and courtship.[12]

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[11] Stowe's novel was just one of many fictive responses to the theory of sexual selection. Many other novelists also responded to the encroachment of evolutionary science into the terrain of romantic love. In 1873, Philip Quilibet predicted that 20th century scholars would look back and note the "universal drenching of [19th century] belles-lettres with science and sociology," especially Darwinism: "The novel-writer's province bears witness to the Darwinian ferment. Tracing simian propensities in society must henceforth inevitably be the story-wright's leading business." Quilibet, "Darwinism in Literature," *The Galaxy* 25 (May 1873): 695-698. According to literary scholar Bert Bender, Quilibet's prediction was right. In *The Descent of Love: Darwin and the Theory of Sexual Selection in American Fiction, 1871-1926* (1996), Bender argues that William Dean Howells, Edith Wharton, Henry James, Kate Chopin, Charles W. Chestnutt, and Ernest Hemingway, among others, were deeply influenced by *The Descent of Man* and responded to it in their writing. According to Bender, previous studies of Darwin's influence on literature have focused on naturalistic fiction and the response to natural selection, when, in fact, novelists were much more deeply influenced by the *Descent*. Bert Bender, *The Descent of Love: Darwin and the Theory of Sexual Selection in American Fiction, 1871-1926* (Philadelphia: University of Pennsylvania Press, 1996). See also, Bert Bender, "Kate Chopin's Quarrel with Darwin Before 'The Awakening,'" *Journal of American Studies* 26.2 (August 1992): 185-205; Sandra Hayes, "No Woman's Zone: Edith Wharton's Revolutionary Writings," (Ph.D. Diss., University of Notre Dame, 1997). Hayes argues that Wharton read evolutionary theory and challenged Darwin's theories of gender, as outlined in the *Descent*, in her novels and short stories and presented an alternative role for women in *The Age of Innocence*. For responses to Darwin in British literature, see Gillian Beer *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction*, 2d ed. (New York: Cambridge University Press, 2000); Jennifer Elisabeth Gerstel, "Sexual Selection and Mate Choice in Darwin, Eliot, Gaskell, and Hardy," (Ph.D. diss., University of Toronto, 2002); Angelique Richardson, *Love and Eugenics in the Late Nineteenth Century: Rational Reproduction and the New Woman* (New York: Oxford University Press, 2003).

[12] For other American stories that referenced the *Descent*, see also, Margaret Vandegrift, "Mademoiselle Stylites," *Lippincott's Magazine of Popular Literature and Science* 11 (April 1873): 459-464. This short story was about a sister and brother who attended a "natural history" lecture on man's descent from gorillas. The sister did not want to go, but, later, she ended up liking a man she recognized from the lecture and decided to be more interested in natural history. Edith Wharton, "The Descent of Man," in *The Descent of Man and Other Stories* (1904) (reprint, New York: Books for Libraries Press,

Most significantly, sexual selection forced Americans to contend with reproduction in natural, animalistic terms and consider the possibility that human romance was simply another form of animal mating, not a divine relationship ordained by God.

The Gendered Reception of *The Descent of Man*

Despite the scientific controversies raised by the theory of sexual selection, *The Descent of Man* as a whole did not cause nearly the outrage that the *Origin of Species* did, a fact that came as a tremendous surprise to Darwin. He mused, "[e]veryone is talking about it without being shocked." Other scientists, too, noted the equanimity that greeted the *Descent*. Darwin's ally Joseph Hooker informed him, "I dined out three days last week, and at every table heard evolution talked of as an accepted fact, and the descent of man with calmness."[13] By the time Darwin published the *Descent*, most people had accepted the idea of gradual evolution and already assumed that humans were part of the evolutionary process that Darwin described in the *Origin*, even though in that work he had shrewdly declined to extend his theory of evolution by natural selection to humans. Moreover, in the interim, other scientists had made the connection explicit. The *Descent*,

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1970): 1-34 (page citations are to the reprint edition); William Black, "Madcap Violet," *The Galaxy* 5 (May 1876): 602-608. In this story, Violet North, beautiful and single, didn't want to marry because she liked her independence. George Miller proposed to her; she declined. She then alluded to the fact that she liked someone else. She went out "adventuring" and stopped by a book store where she informed the bookseller that she needed the best book on philosophy for a "gentleman who has studied nearly everything." She saw the new copies of *The Descent of Man* and immediately decided that was the book she needed because she remembered hearing Mr. Drummond, presumably her love interest, remark that his copy of the book had not yet arrived (606-607).

[13] Francis Darwin, ed., *The Life and Letters of Charles Darwin, Including an Autobiographical Chapter, volume III* (London: J. Murray, 1887), 133; quoted in Himmelfarb, *Darwin and the Darwinian Revolution*, 355, n. 11. Hooker to Darwin, March 26, 1871. Joseph Dalton Hooker, *Life and Letters*, vol. 2, ed. Leonard Huxley (London: J. Murray, 1918) 125; quoted in Himmelfarb, *Darwin and the Darwinian Revolution*, 355, n. 10. Though Himmelfarb argues that even though lots of people talked about *Descent* few actually read it.

however, did prompt a tremendous amount of discussion about man's relationship to animals and the meaning of romantic love.

Americans greeted the publication of the *Descent* with a mixture of deference, excitement, and skepticism. Regardless of whether or not reviewers accepted Darwin's arguments, all agreed that the book was a literary sensation and a must-read. Even the negative reviews suggested that people read the *Descent*; this was true among the religious periodicals, too. The *Descent* appeared on prominent book lists for women's and girls' clubs, newspaper and magazine articles frequently referred to how well-known the book was, and the *New York Times* reported that it was among the most popular books checked out of the Aguilar Free Library's three branches in Manhattan as late as 1895.[14] One literary notice observed, "[t]he very general discussion by the press of Darwin's 'The Descent of Man' has, instead of exhausting public interest in this latest scientific question, greatly stimulated it. The sale of Darwin's work is almost unprecedented in scientific literature."[15] Just a few weeks after the first U.S. editions of the *Descent* hit the stands, Edward L. Youmans, publisher of *Popular Science Monthly*, wrote to Herbert Spencer, "[t]hings are going here furiously. I have never known anything quite like it. Ten thousand *Descent of Man* have been printed, and I guess they are nearly all gone."[16]

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[14] See, for example, Augusta Leypoldt and George Iles, ed., *Lists of Books for Girls and Women and their Clubs* (Boston: American Library Association, The Library Bureau, 1895), 108-111. Copy residing at the Boston Athenaeum. "The Aguilar Free Library," *New York Times*, 5 July 1896, 24.

[15] "Literary Notes," *Appleton's Journal* 5, 20 May 1871, 596.

[16] Sidney Ratner, "Evolution and the Rise of the Scientific Spirit in America," *Philosophy of Science* 3 (1936): 113; quoted in Bender, *Descent of Love*, 3, n. 3.

Few American periodicals published as detailed reviews of the work as did the major British journals, though of course some British journals enjoyed a wide U.S. readership, and most refrained from casting final judgment on the work, instead encouraging readers to draw their own conclusions.[17] The *Galaxy* proclaimed, "[w]hatever may be thought of Mr. Darwin's conclusions as to the origin of man, his book will be found a rich mine of facts, entertaining and curious on the highest questions of natural history."[18] *Old and New* declared the *Descent* to be "as exciting as any novel."[19] *Appleton's* (Darwin's U.S. publisher) noted that the *Descent* was the literary sensation of the month, while *Harper's* announced that one could not open a magazine without reading about it.[20] The majority of reviewers accepted Darwinian evolution, or at least pointed out that most scientists did, but dismissed Darwin's claim that humans were close kin to animals as an unproven hypothesis.[21]

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[17] Previous accounts of the *Descent's* reception focus largely on British scientific publications and on the reactions of well-known scientists, highlighting the scientific controversies between Darwin and the two most prominent critics of sexual selection, Wallace and St. George Mivart. For examples of such reviews, see: "Darwin on the *Descent of Man*," *The Edinburgh Review* 134 (July 1871): 193-235; Review of *The Descent of Man, and Selection in Relation to Sex*, by Charles Darwin, *Quarterly Review* 131 (July 1871): 47-90; Review of *The Descent of Man, and Selection in Relation to Sex*, by Charles Darwin, *Westminster and Foreign Quarterly Review*, 1 October 1872, 378-400. For historical accounts of the reception, see, for example, Himmelfarb, *Darwin and the Darwinian Revolution*; Harel, "When Darwin Flopped;" and Bartley, "A Century of Debate." An exception to this is Griet Vandermassen's "Sexual Selection: A Tale of Male Bias and Feminist Denial," *European Journal of Women's Studies* 11 (2004): 9-26. Vandermassen points to early feminist interpretations of the theory and argues that feminists today should incorporate the theory of sexual selection into their programs for gender equality.

[18] "The Descent of Man," *The Galaxy* 9 (March 1871): 463. *The Galaxy* printed "Sea" instead of "Sex" in the full title of the work. Citing this misprint as one example, literary scholar Bert Bender, who examined responses to sexual selection in fiction, noted that most reviews he found were loath to print the term "sexual selection," but I did not find that to be the case generally speaking.

[19] "Darwin's Descent of Man," *Old and New* 3 (May 1871): 598.

[20] "Darwin on the Descent of Man," *Harper's New Monthly Magazine* (July 1871): 305-307; "Table-talk," *Appleton's Journal* 5, 11 February 1871, 174-175.

[21] For other reviews of the *Descent*, see: Chauncey Wright, "Contributions to the Theory of Natural Selection," *North American Review* (July 1871): 63-104; Review of *The Descent of Man*, by Charles Darwin, *The Southern Review* 10 (July 1871): 733-739, which attacked the theory on religious and

While American reviews of the *Descent* focused on Darwin's assertion that humans' mental faculties differed in degree, not kind, from those of animals, several did try to make sense of sexual selection. Referring to sexual selection, the *New York Times* reported, "[n]othing that Darwin has written is so ingenious or suggestive than the long, minute, and careful investigation in this field."[22] The *Independent* cautiously noted, "[h]alf the present volume is taken up with a discussion of sexual selection, which proves to be very curious, and more important than would have been expected."[23] *Overland Monthly* printed the most in-depth analysis of the theory in the article "The Darwinian Eden." It did not so much critique the theory of sexual selection as argue that it could not possibly be a factor in modern society where "the most likely young fellow that ever trod the earth does not stand the ghost of a show beside the rich man, though the latter should be humped as to his back, gnarled and twisted as to his limbs, lean, withered, and decrepit." Furthermore, the review went on, if the state intervened to arrange eugenic

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methodological grounds; "The Descent of Man," *The Nation* 12, 13 April 1871: 258-260. This review declared "to more liberal minds, it will appear the most lucid and impartial exposition of the present state of scientific opinion respecting the origin of man and his relation to the lower animals," but they excluded the "immortal part of man" from the discussion; "Darwin's Descent of Man," *Old and New* 3 (May 1871): 594-600, concluded that the book was too speculative; "Darwinism," *Scribner's Monthly* 2 (May 1871): 110, declared *Descent* to be the "most important contribution" to the discussion about the genealogy of man though the reviewer seemed relieved that many scientists had found evidence of a higher creator; James McCosh, "Darwin's The Descent of Man," *The Independent* 23, 4 May 1871, 3, questioned whether evolutionary mechanisms could account for everything Darwin said they could and supposed that there was a divine element involved; "The Leather Bottel: A Darwinian Ditty," *Harper's Bazaar* 4, 3 June 1871, 343; "Is Man Descended from the Monkey? A Baboon's Views," *Saturday Evening Post*, 3 June 1871, 3. This was a spoof of the *Descent* where a baboon pointed out all the cruel things men did and said that they could not possibly be descended from baboons.

[22] "New Publications," *New York Times*, 1 June 1871, 2

[23] Review 4 (no title), *The Independent* 23, 16 March 1871, 6.

matches, which Darwin did not suggest, people would revolt and take lovers, resulting in "the repulsive doctrines of Free Love."[24]

Other publications took a more circumspect approach to this new theory of sex. *Appleton's* thoroughly explained sexual selection in two consecutive articles, but discussed its applications only in relation to birds.[25] "We scarcely know how to deal with Sexual Selection . . . It is both a delicate and a difficult subject, and cannot be discussed within moderate limits," declared the *Albion* before fairly summarizing the theory's main points. This review did, however, take issue with Darwin's hypothesis that sexual selection accounted for female's lack of body hair; they argued that something so miraculous must have been caused by a divine creator.[26] The question of female body hair animated much of the discussion surrounding *The Descent of Man*, as this chapter will demonstrate, because it touched on two central premises of the work: the development of secondary sex characteristics and the evolutionary importance of female beauty.

That sexual selection disrupted American's ideas about proper gendered behavior was evident as well in the many humorous spoofs and cartoons parodying *The Descent of Man*. The most popular was a song, to the tune of "Greensleeves," first published in *Blackwood's Edinburgh Magazine* and reprinted in several U.S. publications. Among the "very queer things" that happened as humans descended from animals was that "women

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[24] "The Darwinian Eden," *Overland Monthly and Out West Magazine* 7 (July 1871): 164. The reviewer also declared the book the "best natural history of modern times."

[25] "The Museum," *Appleton's* 5, 15 April 1871, 447-448; and "The Museum," *Appleton's* 5, 22 April 1871, 479-480.

[26] "Mr. Darwin's New Work, 'The Descent of Man,'" *The Albion: A Journal of News, Politics* 49, 1 April 1871, 198-199.

plainly had beards and big whiskers at first. While the man supplied milk when the baby was nursed; And some other strong facts I could tell – if I durst – which nobody can deny." If Darwin's remarks about such atavistic traits as male nipples and female facial hair could be laughed off, so could his hint that people should select their mates according to evolutionary criteria:

> But now if in future good breeding we prize, to be cherubs and angels we some day may rise; and, indeed, some sweet angels are now in my eyes – which nobody can deny. If this is our wish, we must act with due care; and in choosing our spouses no pains we should spare, but select only those that are wise, good, and fair—which nobody can deny. Yet however he came by it, Man has a Soul, that will not so submit to despotic control, as to make Monks and Nuns of three-fourths of the whole—which nobody can deny. The Bad may be pretty, the Good may be plain; and sad matches are made from the lucre of gain; so perhaps as we are we shall likely remain—which nobody can deny.[27]

While this author resisted the *Descent*'s implication that courtship might serve evolutionary purposes, the spoof made manifest the fact that Darwin's theories provided the intellectual framework necessary for a vast rethinking of gender and sex.

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[27] *Blackwood's Edinburgh Magazine* ran this spoof of *The Descent of Man* (Darwinian loquitur) in its April 1871 edition and it was widely reprinted in the U.S. See, "The Descent of Man (Darwinian Loquitur)." *Appleton's Journal of Literature, Science, and Art*, 13 May 1871, 558-559; "The Descent of Man (Darwinian Loquitur)." *The Christian Advocate* 46, 22 June 1871, 194; "The Descent of Man (Darwinian Loquitur)." *The Eclectic Magazine of Foreign Literature* 13 (June 1871): 696-698; "The Descent of Man (Darwinian Loquitur)." *Medical and Surgical Reporter*, 14 October 1871, 351; "The Descent of Man (Darwinian Loquitur)." *The Scientific American*, 3 June 1871, 361.
A serious review also contained the following joke further revealing the work's gendered reception: "Darwin has not written in vain. Let all parents and teachers buy his latest work, 'The Descent of Man,' (ought he not have called it the *ascent of man*), and indeed other works of his, for the sake of the zoological anecdotes. Here is one: -- A certain motherly ape was wont to adopt and care for a variety of young beside her own – such as puppies, kittens, orphaned monkeys and other human beings. A kitten under her care, striking round, as kittens will, scratched the good ape's nose – an unprecedented experience in all her nursery work. The ape caught the kitten at once, examined the paws, discovered the offending claws, and bit them off one by one. A capital story! I have wakened in the night and laughed in the dark at the vision of that sober ape chastising her kitten, tempering mercy with justice. If it must be so, that we are all ascended from apes, I like such as she, for my ancestress in the millionth degree before Eve. 'Give time enough,' the daughters of such an ape might keep boarding-school with success." T.K.B., "Our Own Correspondent" Abroad, *Christian Union* 3, 10 May 1871, 297.

Visual images also presented interesting commentaries on the gendered ramifications of the *Descent.* *Harper's Bazaar* published two cartoons in response to the publication of this watershed work (figures 7 and 8). In the cartoon "A Logical Refutation of Mr. Darwin's Theory," a husband read passages from the *Descent* to his wife "whom he adores, but loves to teaze." In the illustration, the bearded husband, (beards were important nineteenth-century markers of masculinity) kneeled in front of the wife in their well-appointed and wall-papered Victorian parlor and read to her while she cuddled their baby. The wife, however, firmly rejected the assertion that their baby was "descended from a Hairy Quadruped with Pointed Ears and a Tail." "Speak for *yourself*, Jack! *I'm* not descended from anything of the kind," she responded. "I beg to say; and Baby takes after Me. So there!"[28] The accompanying illustration depicted the wife as decorous, civilized, and the epitome of Victorian femininity. While bearded, brute man could perhaps have evolved from ape-like progenitors, his refined wife most certainly did not.

The second cartoon, "The Descent of Man," played on both racial and gendered anxieties. The "figurative" man asked the "literal man" why he should care whether or not he was descended from an "Anthropoid Ape," so long as he himself was a man. The "literal man," who had simian facial features and who was depicted as speaking in dialect, responded, "Haw I wather disagueeable for your *Guate-Guandmother*, wasn't it?"[29] Again, the message was clear: women could not have descended from apes and no

[28] "A Logical Refutation of Mr. Darwin's Theory," *Harper's Bazaar*, 6 May 1871, 288. Reprinted through American Periodical Series (APS) Online.

[29] "The Descent of Man," *Harper's Bazaar*, 28 June 1873, 416. Reprinted through APS online.

civilized woman would have sanctioned sex with an animal ancestor. For *Harper's* readers and cartoonists, the *Descent* evoked fears and interest because it threatened to overturn established Victorian notions of gender, sex, and race.

Perhaps the most telling spoof of the *Descent* was *The Fall of Man: Or, the Loves of the Gorillas*, billed as "A popular scientific lecture upon the Darwinian theory of Development by Sexual Selection, By a Learned Gorilla."[30] This ape held a public lecture to explain to his neighbors how their distant cousin man had evolved from gorillas through the process of sexual selection. Much like humans, the gorilla pointed out, monkeys were a fallen race:

> We fell, my quadrumanous friends, through the frailty and fickleness of the female sex. That charming and no less useful half of our race has also been its bane and its torment for many centuries. To them we owe the humiliating fact that gorillas once had tails, and that some even of our cousins are still afflicted with that ridiculous, though sometimes useful, appendage.[31]

In contrast to the biblical account of the fall through female curiosity, gorillas fell through female choice. Once upon a time, the speaker explained, a beautiful female gorilla did not like any of her suitors and refused to be captured. Then one day, she spied a sea serpent and fell instantly in love with him. Their offspring had tails, and soon tails became a highly desired trait. Subsequently, a whole generation of gorillas with tails evolved. At first gorillas welcomed this development, but the tail kept growing long after the gorilla and soon became dangerous. "In this deplorable state of affairs, we were saved by the action of the same great principle of sexual selection to which we owed our

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[30] *The Fall of Man: Or, the Loves of the Gorillas. A Popular Scientific Lecture Upon the Darwinian Theory of Development by Sexual Selection*. By a Learned Gorilla (New York: G.W. Carleton & Co, 1871). Published anonymously by Richard Grant White.

[31] Ibid., 9-10.

degradation. By a female came our fall, and through a female came our salvation," reported the narrator. Another young gorilla resolved to marry a tailless hippopotamus and, thus, reversed the trend.

To explain how humans had evolved from apes, the learned gorilla related the story of a mutant hairless ancestor with whom all the females fell in love. Much to the females' dismay, this prized bachelor refused to marry anyone with more hair than he had. Desperate for his affection, one female removed all her body hair by sticking herself to a gum tree and violently yanking herself off. Her improvised body wax succeeded, and she married the hairless gorilla. He then convinced other females to remove their hair. The whole hairless bunch was exiled from the gorillas with hair and eventually came to be known as "man." Of all of the American responses to the *Descent, The Fall of Man* dealt most directly with sexual selection and the theory's gendered ramifications, especially the power and controversial nature of female choice, the importance of hair as a marker of gender, and the materialist discussion of sex prevalent throughout the *Descent*.

The satire's thinly veiled remarks about female desire, female sexual pleasure, and even female control of reproduction also pointed to the potentially revolutionary interpretations of the *Descent.* For example, the narrator mentioned that no "well-regulated female gorilla would ever become a mother for the fourth time," implying that there was a link between evolutionary advancement and female control of reproduction. Similarly, the female gorilla who first eyed the sea serpent was "smitten to her very midriff with love's dart," and the one who wooed the hippopotamus was initially

thwarted in her desire by his indifference, which the author strongly insinuated was evidenced by his flaccid penis.[32] These two women played the most important roles in the gorilla's evolutionary sagas, and such comments implied that their actions were driven by lust. Even critics of the theory could not deny that sexual selection precipitated new ideas about gender and sex.

As *The Fall of Man* indicated, individual attraction was a key component of sexual selection, and, among humans, no trait was more highly prized than female beauty. Darwin attributed significant evolutionary power to beauty, and his remarks about aesthetics more generally played a vital role in the theory's scientific and popular reception. According to Darwin:

> As women have long been selected for beauty, it is not surprising that some of the successive variations should have been transmitted in a limited manner; and consequently that women should have transmitted their beauty in a somewhat higher degree to their female than to their male offspring. Hence women have become more beautiful than men.[33]

While some reviewers were hesitant to endorse the theory of sexual selection or apply it to humans, many accepted his claims regarding the power of female beauty. The influential journal *Nature* reasoned that natural selection could better explain the prevalence of male-to-male competition (this was Wallace's critique of sexual selection) but it could not account for the presence of beauty: "But though in the lists of Love the battle is often to the strong, even more frequently it is to the beautiful." The reviewer went on:

[32] Ibid., 8, 12, 19.
[33] Darwin, *Descent* II, 372.

> The prevailing aspect of nature is beauty, and the prevailing taste of man is for beauty also.. . .But that many of the most striking ornaments of the higher animals, and almost all those peculiar to one sex, have been developed by means of sexual selection, is a conclusion which can no longer be distrusted. There remain doubtless many exceptions to be accounted for, many modifying influences to be discovered; but the existence of a new principle has been established which has helped to guide the organic world to its present condition. Side by side with the struggle for existence has gone on a rivalry for reproduction, and the survival of the fittest has been tempered by the success of the most attractive."[34]

The "success of the most attractive" became central to the reception of *The Descent of Man*. Unlike his theories of female choice and man's close ties with animals, Darwin's remarks about the evolutionary necessity of female beauty accorded with Victorian ideas about gender, thereby making the premise popularly acceptable even as its emphasis on the physicality of love threatened to topple other cultural norms. In the years following the publication of the *Descent,* scientists attempted to decipher the evolutionary basis of female beauty and marriage experts extolled its praises in prescriptive literature, signaling important changes in courtship, popular culture, and people's daily lives.

The varied reviews of and responses to the *Descent* demonstrate that it prompted scientists and laypeople alike to think critically and scientifically about gender and sex. This groundbreaking publication marked a major turning point in popular conceptions of gender and sex in much the same way that Freud's work did, but this point has been obscured by historians' focus on the religious controversies surrounding Darwin's theory of evolution and on the internecine scientific squabbles concerning evolutionary mechanisms. Most nineteenth-century scientists did not accept sexual selection, but,

[34] P.H. Pye-Smith, review of *The Descent of Man* part 1, *Nature* 3, 6 April 1871, 442-444; part 2, 13 April 1871, 463-465. He discussed sexual selection and female beauty in part 2 on page 465.

nevertheless, the theory triggered a tremendous amount of scientific research on sex and inspired social scientists, marriage experts, reformers, and sexologists. Furthermore, sexual selection challenged American's previously held beliefs about the distinctions between human marriage and animal mating, the religious prescriptions governing romantic love, and the ultimate purpose of marriage and courtship.

To be sure, Darwin's courtship narrative was largely conservative, imposing Victorian gender roles and mating behavior on animals – combative male insects, strutting peacocks, and coy peahens – on the one hand, and espousing marriage as the epitome of civilization on the other. Yet, the *Descent* was a multivalent text and the ways in which it was interpreted often depended upon the interpreter's other views. Darwin's theory contained many internal contradictions and loopholes enabling readers, especially those keen to challenge traditional gender norms, to interpret it in revolutionary ways. It also included provocative and potentially radical concepts, such as female choice of sexual partners and the naturalization of human sexual urges, providing attentive readers with new ways of thinking about sexual relations and power systems. In fact, a generation of sex radicals, feminists, socialists, and pioneering sexologists all counted Darwin as an intellectual ancestor in the struggle for female emancipation, marriage reform, and birth control.[35] Furthermore, Darwin's theory of sexual selection also

[35] Bert Bender argues that the *Descent* "powerfully disrupted the Victorian sense of order by initiating the scientific analysis of sex itself, demystifying it and paying the way for the next generation of modernist sexual theory that began almost immediately in the work of Freud and Havelock Ellis." Bender, *Descent of Love*, 16. See also, Lawrence Birken, *Consuming Desire: Sexual Science and the Emergence of a Culture of Abundance*, 1871-1914 (Ithaca: Cornell University Press, 1988). Birken argues that the *Descent* marked a critical turning point in thinking about sex and paved the way for sexology. A similar argument is made in Frank Sulloway, *Freud, Biologist of the Mind: Beyond the Psychoanalytic Legend* (New York: Basic Books, 1979). Sulloway suggests that the field of sexology emerged with the

inspired countless naturalists, doctors, and social scientists to delve into the intricacies of human and animal mating, thereby making sex an acceptable subject of scientific inquiry. Together, the popular and scientific responses to and interpretations of *The Descent of Man* both affirmed and upended traditional ideas about courtship, marriage, and sex. In this chapter, I argue that sexual selection inspired the scientific study of sex; redefined marriage in terms of animal mating; polarized gender ideals according to sexualized notions of men and women; elevated the importance of female beauty by giving it an evolutionary purpose; and inspired calls for marriage reform and greater female autonomy in reproductive decisions.

The Science of Love

Darwin sketched his theory of sexual selection in broad strokes, noting that "[t]he views here advanced, on the part which sexual selection has played in the history of man, want scientific precision."[36] In essence, he invited other scientists to work out the details, which they did in earnest between 1870 and 1910. Following the publication of *The Descent of Man*, scientists raced to decode the science of love by studying the smells,

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publication of the *Descent* and that Freud was more influenced by Darwin than any other intellectual source. For another study of the influence of Darwin on Freud, see Lucille B. Ritvo, *Darwin's Influence on Freud: A Tale of Two Sciences* (New Haven: Yale University Press, 1990). Vern Bullough, too, contends that Darwin's theory of sexual selection "proved a strong impetus for studies in sexuality" and was a "major factor in removing some of the stigma from studying sex." Bullough, *Science in the Bedroom: A History of Sex Research* (New York: Basic Books, 1994), 5. For another interpretation of the radical potential of sexual selection, see, George Levine, *Darwin Loves You: Natural Selection and the Re-enchantment of the World* (Princeton: Princeton University Press, 2006), especially chapter six. Levine argues that the Darwinian worldview, namely the idea that all living beings are intimately related, suggests a "compatibility between an enchantment that has the power to stimulate ethical engagement and a naturalistic vision of the world" (167). He also argues that even though sexual selection was no doubt imbued with Victorian sexual and racial prejudices, it also transcended them and "open[ed] up new possibilities" (197).

[36] Darwin, *Descent* II, 383

sounds, and features that attracted males to females, and vice versa. Why had women lost their facial hair over time, they asked. And, did animals in fact exercise aesthetic preferences? The *Index Medicus*, an annual publication listing all scientific and medical articles published in Europe and the U.S., first listed "sex" as a category in 1884. By the end of the 1880s "sex" had several subheadings, most of which had to do with sexual selection among humans and animals. Whether or not scientists wholeheartedly accepted Darwin's theory of sexual selection, they took to studying it and experimenting with it in earnest. As eminent biologists Patrick Geddes and J. Arthur Thomson observed, "To those who feel strongly that 'love' is an artistic preserve – a charmed corner of Earthly Paradise – where science is a trespasser, little can be said by us biologists. Unless it be this, that from their position it is impossible to see one of the biggest facts about 'love,' namely its evolution."[37]

After the publication of the *Descent*, many scientists acknowledged that life consisted of both the struggle for food and the struggle for mates. Thus far, however, they contended that the struggle for food had received a disproportionate amount of attention and encouraged more study of courtship among animals and humans. These scientists believed reproduction, not the struggle for existence, drove the evolutionary process. As Geddes and Thomson argued:

> The ideal of evolution is indeed an Eden; and although competition can never be wholly eliminated, and progress must thus approach without ever completely reaching its ideal, it is much for our pure natural history to recognise that "creation's final law" is not struggle but love.[38]

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[37] Patrick Geddes and J. Arthur Thomson, *Sex* (New York: Henry Holt, 1914), 8.

[38] Partick Geddes and J. Arthur Thomson, *The Evolution of Sex*, The Contemporary Science Series, ed. Havelock Ellis (New York: Charles Scribner's Sons, 1897), 312.

Such interpretations put sex in an entirely new context by suggesting that it was a scientific process that could be studied, understood, and maybe even controlled. Furthermore, this new worldview posited that reproductive choices shaped the evolutionary process and that perhaps animal mating could shed light on human love.

Similarly, social scientist W.I. Thomas contended that perhaps struggle and conflict had defined early animal life, but they could not account for human evolution:

> All of this seems to indicate that there is an element in sensibility not accounted for on the exploit or food side, and this element is, I believe, genetically connected with sexual life. . . On this account the means of attracting and interesting others are definitely and bountifully developed among all the higher species of animals.[39]

Not only did the distinctions between men and women indicate evolutionary progress, so, too, did their courtship practices and rituals. Moreover, in *The Ascent of Man* (1894), Henry Drummond argued that the main error in all evolutionary theory since Darwin had been the fixation on the struggle for life as the overarching drama. According to Drummond, the "struggle for the life of others," by which he meant reproduction, was equally important.[40] The article “Love in the Light of the New Biology,” made a comparable claim.[41] The “new biology” indicated that “romantic love seems to have been the dominant consideration of human existence. From a purely scientific standpoint, therefore, this sentiment must have been, from the first, of overshadowing

[39] W.I. Thomas, *Sex and Society* (Chicago: University of Chicago Press, 1907), 111-112.
[40] Henry Drummond, *The Ascent of Man*, 9th ed. (New York: James Pott and Co., 1899), 13.
[41] “Love in the Light of the New Biology,” *Current Literature*, XLVIII (November 1907), 561.

importance in the evolution of biological man . . ."[42] As such, "[r]omantic love, in the light of the new biology, is thus seen to be a scientific fact in a far more intimately personal sense to the individual than even the poets have made it." To scientists, studying love from the perspective of biology made human romance even more provocative and opened up new fields of inquiry. Darwin frequently commented on the fascinating courtship rituals of animals and insects; now, humans could count themselves among this interesting lot. Moreover, in better understanding human love, scientists hoped to further their knowledge of evolution.

Among the new areas of investigation prompted by the *Descent*, the development and function of aesthetic senses, in both humans and animals, topped scientists' agendas. Grant Allen, the British novelist and amateur scientist, wrote numerous articles on this burgeoning topic. In an article entitled "Aesthetic Feeling in Birds," Allen observed "[t]here is no portion of Mr. Darwin's great superstructure which has been subjected to more searching criticism than his theory of sexual selection – the theory that beauty in animals is dependent, at least in part, upon the choice of brightly colored, ornamented, or musically endowed mates by one or other sex among all the more highly developed classes. . ."[43] Allen wrote to counter those who doubted that sexual selection played an active role in evolution or that animals could have aesthetic preferences. His study of birds confirmed their aesthetic senses and convinced him that birds were second only to

[42] Ibid.

[43] Grant Allen, "Aesthetic Feeling in Birds," PSM 17 (September 1880): 650- 663. Allen also wrote a book about aesthetics, *Physiological Aesthetics* (New York: D. Appleton and Company, 1877). He dedicated this book to Spencer, but he attributed the method of the book to Darwin, "our great teacher." The aim of this book was to "exhibit the purely physical origin of the sense of beauty" and establish that "our existing likes and dislikes in aesthetic matters are the necessary result of natural selection" (2, viii).

humans in their sense of beauty.[44] In a subsequent article, Allen admitted, "since the appearance of my work 'The Color-Sense' and the numerous criticisms to which it gave rise, I have fully reconsidered the whole question of sexual selection in the light of all that has been written about it, and feel only the more convinced of the general truth of Mr. Darwin's views upon the subject." Ultimately, he believed, "[t]he facts on which Mr. Darwin bases his theory of sexual selection thus become of the first importance for the aesthetic philosopher, because they are really the only solid evidence for the existence of a love of beauty in the infra-human world."[45] Allen's research convinced him of efficacy of sexual selection and indicated that this mechanism operated in other species as well.

Darwin devoted the largest portion of the *Descent* to the discussion of sexual selection in birds. His studies of birds convinced him that the sense of beauty was not "peculiar to man." As Darwin observed, "when we behold male birds elaborately displaying their plumes and splendid colours before the females, whilst other birds not thus decorated make no such display, it is impossible to doubt that females admire the beauty of their male partners."[46] Likewise, many of the subsequent studies of sexual selection also focused on birds, though studies were certainly not limited to birds. *Popular Science Monthly* printed an announcement about new studies on sexual selection

[44] Grant Allen, *The Color-Sense: Its Origin and Development, an essay on Comparative Psychology* (Boston: Houghton, Osgood, 1879), 650-651.

[45] Grant Allen, "Aesthetic Evolution in Man," PSM 18 (January 1881): 340-341.

[46] Darwin, *Descent* I, 63.

among monkeys in 1877, and other scientists delved into arthropod romance.[47] George W. and Elizabeth G. Peckham, for example, conducted well-received experiments on sexual selection in spiders of the family Attidae, published in *American Naturalist*, *Nature*, and *Popular Science Monthly*. According to E. B. Poulton, a leading scientist of aesthetics and color, the Peckham's work pointed strongly "towards the existence of female preference based on aesthetic considerations."[48]

Of course, scientists also applied the theory of sexual selection to humans. *Popular Science Monthly*, for example, published an article contending that China lagged behind as a civilization because the Chinese relied on arranged marriages, thereby prohibiting sexual selection from playing a role in their evolution.[49] Moreover, some scientists and social scientists, most notably Havelock Ellis, made careers out of applying Darwin's theory of sexual selection to humans. Ellis took Darwin's doctrine of sexual selection as his inspiration and point of departure. In *Studies in the Psychology of Sex*, especially volume 4 "Sexual Selection in Man," Ellis attempted to tease out what Darwin meant by "beauty." According to Ellis, beauty was not quite the right term, as it implied only an aesthetic element; Ellis contended that "to a greater extent beauty is simply a name for the complexus of stimuli which most adequately arouses love." He attempted

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[47] "Sexual Selection Among the Monkeys," PSM 10 (January 1877): 379-380. See also, Thomas H. Montgomery, Jr. "The Significance of the Courtship and Secondary Sexual Characters of Araneads," *The American Naturalist* 44 (March 1910): 151-177.

[48] E.[Edward] B. [Bagnall] Poulton, *The Colours of Animals: Their Meaning and Use, Especially Considered in the Case of Insects*, International Scientific Series (New York: D. Appleton and Company, 1890), 299. Quoted in Bartley, "A Century of Debate," 84-85, n. 207. Bartley also discusses the Peckham's study in greater detail. *Popular Science Monthly* announced their study in "Observations on Sexual Selection in Spiders of the Family Attidae," published in the "Occasional" volume of the Natural History Society of Wisconsin, PSM 37 (June 1890): 279.

[49] Adele M. Fielde, "Chinese Marriage Customs," PSM 34 (December 1888): 241-246. Also reprinted in *Littell's Living Age* 181, 8 June 1889, 640.

to decode these stimuli as they appealed to all four senses: touch, smell, hearing, and vision.[50]

Perhaps the most influential scientific work on sex inspired by *The Descent of Man* was Patrick Geddes and J. Arthur Thomson's *The Evolution of Sex* (1890). While Geddes and Thomson opposed key elements of Darwin's theory of sexual selection, including his claim that it gave rise to secondary sex characteristics, they were nevertheless inspired by his work to publish their own analysis of the role of sex in evolution. The crux of their theory was that secondary sex characteristics were not secondary at all, but primary – the result of the essential maleness or femaleness of each individual. Laden with Victorian notions of proper gendered behavior, their theory of sex differences argued that men were essentially "katabolic" (active, dominated by destructive processes) while women were essentially "anabolic" (passive, dominated by constructive processes). According to Geddes and Thomson, the differences between men and women could be deduced from their respective germ cells: trim, efficient sperm swam quickly while the large, well-nourished egg passively waited. Previous historians of gender and science have rightly focused on the misogynist elements of this theory and its ramifications, but Geddes and Thomson's book was more than the sum of all its parts.[51]

In *The Evolution of Sex,* and subsequently in *Sex* (1914), Geddes and Thomson sought to change the tone of discussions about sexuality in order to make it both more

[50] Havelock Ellis, *Studies in the Psychology of Sex*, volume 4 (Philadelphia: F. A. Davis Company, 1918), v-vi.

[51] See, for example, Cynthia Eagle Russett's discussion of Geddes and Thomson in *Sexual Science: The Victorian Construction of Womanhood* (1989).

scientific and more elevated. According to historian Jill Conway, Geddes believed that the scientific study of sex would increase human's capacity to enjoy romantic love. This new appreciation for romance and love would be accompanied by a "parallel development in the sense of moral order so that the new sexual paradise did not threaten Victorian ideas of decorum." "Such a pattern of development," Conway argues, "brought together harmoniously the chivalric tradition of romantic love and the potentially disturbing idea that human sexual appetites were mere animal instincts."[52] Even though Geddes and Thomson disagreed with the main tenets of Darwin's theory of sexual selection, they nevertheless agreed that sex played a vital role in evolution and that it warranted scientific investigation. Furthermore, their method, line of questioning, and tone derived from the *Descent*, its frank discussion of sexuality, and its assumption that reproduction, not struggle, drove the evolutionary process. This new approach to sex made it a popular field of scientific inquiry, inspired scientists and laypeople to question previously held ideals, and, by asserting that human love was merely a highly evolved form of animal mating, cemented the ancestral connections between humans and animals.

The Birds and the Bees

In *The Descent of Man*, Darwin devoted nearly 400 pages to explaining sexual selection in relation to animals and insects and less than 70 pages to man. Before discussing humans, Darwin explained, "[t]he lowest classes will detain us for a very short

[52] Jill Conway, "Stereotypes of Femininity in a Theory of Sexual Evolution," in *Suffer and Be Still: Women in the Victorian Age*, ed. Martha Vicinus (Bloomington: Indiana University Press, 1972), 145.

time, but the higher animals, especially birds, must be treated in considerable length."[53] Sending the message that humans were just one part of the animal kingdom, he began his study of sexual selection with the Entozoa (internal parasitic worms) and worked up to humans. Darwin suggested, by both his organization and analysis, that in order to properly understand human mating, one must put it in its animal context. The pioneering naturalist often interspersed human and animal examples to establish his points and always included "man" under the heading "animal." This mingling supported his primary goal of placing humans firmly in the animal kingdom, but it also shed new light on human sexuality. Even in the sections where Darwin explicitly analyzed animals, birds, and insects, he often relied on anthropomorphic adjectives and language, allowing the reader to imagine analogous situations among humans. For example, he referred to animal mating as "animal courtship" or "marriage" throughout the *Descent*.[54] Darwin also attributed the same secondary sex characteristics to men and male animals, including: greater size, strength, courage, pugnacity, and ornaments of many kinds. Regardless of species, the males who best exhibited these traits emerged victorious in the search for mates.[55] Such descriptions allowed readers to imagine a brave bird with bright feathers, but they also lent themselves to stereotypical images of a powerful man with a wealth of material possessions and a beautiful young woman on his arm.

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[53] Darwin, *Descent* II, 300.

[54] For example, "The courtship of animals is by no means so simple and short an affair as might be thought," or "with respect to reptiles and fishes, too little is known of their habits to enable us to speak of their marriage arrangements," *Descent* II, 262, 271. Darwin further elaborated on the similarities between humans and animals in his next book, *The Expression of the Emotions in Man and Animals* (London: John Murray, 1872).

[55] See, for example, *Descent* II, 256-258

According to Darwin, reproduction was the most important human activity, yet he explained sexual intercourse as just one type of reproduction found in the animal and plant kingdoms. In a Darwinian world, sex was natural and proceeded according to rational, knowable, scientific principles; it was not spiritual or ordained by God. Placing human reproduction so firmly in the animal, as opposed to divine, realm significantly altered ideas about human sexuality and influenced the organization and tone of subsequent scientific and prescriptive literature on human sexuality. Explaining human mating in terms of animal rut removed sex from the specter of religious or moral judgment and, instead, defined it as normal, natural behavior.[56] Many scientists welcomed the idea that human love was governed by scientific, rational laws, and set out to decode these laws as evidenced by the plethora of studies about the aesthetic sense in animals and insects and the growing scientific exploration of human sexuality.

The scientists and laypeople who wrote in response to the *Descent* adopted its animalistic model of human sexuality. Most notably, Geddes and Thomson's *The Evolution of Sex* was published to international acclaim and helped set the tone for future scientific studies of sex. While they believed that sexual selection was only a special case of natural selection and not the origin of sexual differences, they nevertheless affirmed the importance of the "reproductive factor" in human evolution. Indeed, the whole point of *The Evolution of Sex* was to establish how heterosexual intercourse had evolved from unisexual protozoa. According to Geddes and Thomson, human love

[56] It is no coincidence that the most controversial and pioneering sex researcher of the twentieth century, Alfred Kinsey, started off as a Darwinian naturalist who first made name for himself by working out the phylogeny of gall wasps. A discussion of Kinsey is beyond the scope of this dissertation, but it will be included in future iterations of this project.

represented the most advanced form of animal mating and to understand it one had to first study animal mating:

> We accept the conclusion of Darwin, followed by Romanes and others, that all other emotions which we ourselves experience, are likewise recognisable in less perfect, or sometimes more perfect, expression in higher animals. Those which are associated with sex and reproduction are indeed among the most patent; love of mates, love of offspring, lust, jealousy, family affection, social sympathies are undeniable.

Geddes and Thomson declined to comment on whether or not human and animal emotions were "exactly analogous," but they put them on the same continuum. As evidence of the commonalities between humans and all other living things, Geddes and Thomson first illuminated the courtship habits of dung beetles, parasitic worms, and cold-blooded fish before emphasizing:

> The fact to be insisted upon is this, that the vague sexual attraction of the lowest organism has been evolved into a definite reproductive impulse, into a desire often predominating over even that of self-preservation; that this again, enhanced by more and more subtle psychical additions, passes by a gentle gradient into the love of the highest animals, and of the average human individual.[57]

Not only did humans evolve from monkeys, so, too had romantic love evolved from the "croaking of frogs" and the "song of birds."

In *Sex* (1914), Geddes and Thomson amplified their thesis that human sexuality was best understood in terms of animal mating and they urged a more rational, scientific, and capacious approach to sex education. Ignorance, not scientific study, led to sexual deviance and over-indulgence, they claimed. The cure, then, was not less talk of sex, but more, especially in biological terms:

[57] Geddes and Thomson, *The Evolution of Sex*, 264-267.

> We wish to make our position in this respect quite clear. Through and through, and back to the ovum, Man is a mammal, with a mammal's structure and functions, development and pedigree, with a mammal's strength and weaknesses . . there is specificity through and through; yet there is a common ground of protoplasm that makes the whole world kin; and Man cannot disown his mammalian ancestry. He is in solidarity with the animal creation and with mammals in particular.

Geddes and Thomson staked future progress and enlightenment on men and women embracing their mammalian ancestry and all its lessons. Not only would it be hypocritical for men and women to "resent any analogy between animal love-making and their own," "it is well for us to take admiring knowledge of the artistic character of many animal love-makings, for they put man's often too rough and ready manners to utter shame."[58] Like Darwin, Geddes and Thomson insinuated that, far from animal ancestry being an affront to humans, it might in fact be an insult to animals, whose mating rituals they often seemed to prefer.

Anthropologists and social scientists were also inspired about the prospect of studying human sexuality from the perspective of animals. Anthropologist Charles Letourneau began his study of human love, which he claimed was "essentially rut in an intelligent being," by looking at its biological basis and antecedents in animal mating and animal "marriage."[59] He chided previous studies for considering humans as "being[s] apart in the universe" and insisted that the only way to study the evolution of marriage was within the context of animal reproduction. Along with Geddes and Thomson, he urged his readers to "steep [themselves] in the spirit of scientific evolution" and refrain from letting a customary aversion to discussions of sex prejudice their interpretations.

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[58] Geddes and Thomson, *Sex*, 19, 55.

[59] Charles LeTourneau, *The Evolution of Marriage and the Family* (New York: Scribner and Welford, 1891), 9.

LeTourneau also extensively quoted Darwinian biologist Ernst Haeckel who argued for the tremendous transformative power of sexual selection:

> Great effects are everywhere produced, in animated nature, by minute causes. . . .Think of how many curious phenomena sexual selection gives rise to in animal life; think of the results of love in human life; now, all this has for its raison d'etre the union of two cellules"[60]

The *Descent* inspired both Haeckel and LeTourneau to trace human love back to the innate desire of sperm and egg to combine and to prioritize love among humans as the driving force of evolution.

Similarly, in his landmark, three-volume study of the *History of Marriage*, first published in 1891, Edward Westermarck postulated that the origins of human marriage could be found among the higher invertebrates, such as beetles. Throughout the work, he also adopted the phrase "sexual selection" but clarified that by this he meant "the choice made by men or women as regards relations with the opposite sex." Aligned with Wallace (he wrote the preface to the first edition), Westermarck believed that monogamy, and later marriage, evolved as a result of natural, not sexual, selection, but, nevertheless, Darwin's arguments about the commonality between humans and animals pervaded his work.[61] Westermarck later recalled that of all the books he had read the *Descent* "proved the greatest importance in my future work."[62] In the chapter entitled "Sexual Selection in Man," Westermarck affirmed Darwin's main points about female preference, animal

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[60] Haeckel, quoted in LeTourneau, 7.

[61] Edward Westermarck, *The History of Human Marriage*, volume 1, 5th ed. (New York: The Allerton Book Company, 1922), 28-35.

[62] Edward Westermarck, *Memories of My Life* (New York: Macaulay, 1929), 67; quoted in Greta Jones, "The Social History of Darwin's *Descent of Man*," *Economy and Society* 7.1 (February 1978): 19, n. 55.

kinship, and the potency of mate choice as a shaping force in evolution, even though he attributed them to natural selection.[63] In focusing on naturalists' debates about the efficacy of natural versus sexual selection, previous historians have overlooked the many ways in which the main tenets of Darwin's theory of sexual selection, especially his thesis that human courtship was basically an evolved form of animal mating, infiltrated the biological and social sciences, including the anthropological studies of marriage conducted by LeTourneau, Westermarck and others, as well as the increasingly popular genre of prescriptive literature.

Marriage and health guides published after 1870 often described human reproduction in terms of animals. Like their scientific counterparts, most manuals started with cell division in the protozoa and worked their way up to coitus in mammals.[64] In *Chapters on Human Love* (1900), for example, Jeffrey Mortimer declared that in order to understand human love, "[i]t will be necessary first to briefly examine the love customs of animals, beginning with a few low forms, and passing on to those interesting and

[63] Westermarck, *The History of Human Marriage*, volume II, 5th ed. (New York: The Allerton Book Company, 1922), 1-34.

[64] For additional examples of prescriptive literature that explained human reproduction in terms of animal (and sometimes plant) mating, see: Margaret Warner Morley, *Life and Love* (Chicago: A.C. McClurg, 1895); Mrs. P. [Prudence] B. Saur, M.D., *Maternity: A Book for Every Wife and Mother* (Chicago: L.P. Miller and company, 1891), RBMSCL; J.T. Cunningham, *Sexual Dimorphism in the Animal Kingdom; A Theory of the Evolution of Secondary Sexual Characters* (London: Black, 1900); R. T. Trail, M.D., *Sexual Physiology* (New York: Health Publishing, 1906); S. Pancoast, To which is added much valuable hygienic instruction, by C.C. Vanderbeck, *The Ladies' New Medical Guide; An Instructor, Counselor and Friend* (Philadelphia: J.E. Potter and Company, 1890). Authors interested in sexual "purity" took a similar approach of explaining reproduction in terms of plants and animals, see, for example: Mary Wood-Allen, *What A Young Girl Ought to Know* (Philadelphia: The Vir Publishing Company, 1905). Wood-Allen served as World Superintendent of the Woman's Christian Temperance Union Purity Department. For another influential popular scientific treatise that attempted to explicate and apply principles of the *Descent* to the masses, see Dr. Paolo Mantegazza, *The Physiology of Love*, translated from the original Italian edition (New York: Cleveland Publishing Company, 1894). This book is dedicated to "the Daughters of Eve that they may teach men that love is not lechery nor the simony of voluptuousness but a joy that dwells in the highest and holiest regions of the terrestrial paradise. . ."

marvelously intelligent insects the ants and bees." "We must also devote some careful attention to the sexual habits of the vertebrates" because "it must be recognised that the source of human love is in the animal instinct of reproduction, and in no other impulse, it matters not how grand and ennobling the love may be."[65] Mortimer based his book on the principles of evolution and the premise that "we obey the law of evolution through sexual selection and reproduction."[66] He also relied on the writings of Darwin, Ellis, Geddes and Thomson and their efforts to make "the formal history of sex" and the "science of sexualogy" formal branches of research. The influence of evolutionary biology was also evident in Burt Wilder's *What Young People Should Know: The Reproductive Function in Man and the Lower Animals* (1876). This manual, like many of its contemporaries, began its explanation of sex with the protozoa and included many illustrations by noted evolutionists Haeckel and Thomas Huxley.[67] In 1882, one of the best-selling sexual advice authors of the nineteenth century, Dr. J.H. Kellogg, amended his influential *Plain Facts about Sexual Life* to begin with a discussion of animal and plant reproduction.[68]

The proliferation of advice books that explained human sexuality in animalistic terms departed from existing models of sex education and contrasted the prevailing Comstockery of the

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[65] Geoffrey Mortimer, *Chapters on Human Love* (London: The University Press, 1900), 6, 20. RBMSCL.

[66] Ibid., 3.

[67] Burt Wilder, *What Young People Should Know: The Reproductive Function in Man and the Lower Animals* (Boston: Estes and Lauriat, 1876). Wilder was a comparative anatomist at Cornell University and the head of its brain collection, to which Helen Hamilton Gardener donated her brain. For more information about Wilder and his career, see, William Leach, "Scientific Knowledge: The Career of Burt Green Wilder," in *True Love and Perfect Union*, 44-50.

[68] Ronald L. Numbers mentions this change in, "Sex, Science, and Salvation: The Sexual Advice of Ellen G. White and John Harvey Kellogg," in *Right Living: An Anglo-American Tradition of Self-Help Medicine and Hygiene*, ed. Charles Rosenberg (Baltimore: Johns Hopkins University Press, 2003), 217.

time period. Previous work on sexual knowledge in the nineteenth century has overlooked this development, focusing instead on state repression of knowledge, fissures in that repression, and the transition from clerical to medical authority in matters of sexuality.[69] Historian Jeffrey Moran summed up prevailing accounts of Victorian sexual advice literature in *Teaching Sex: The Shaping of Adolescence in the 20th Century* (2000): Victorians, he claimed, "found in 'natural' impulses only a sordid animality."[70] Many advice books published after *The Descent of Man*, however, embraced "animality" and encouraged humans to understand themselves and their sexuality in light of their close kinship with animals. As one author explained, "[s]cience strips all draperies from the objects it examines, and, in the search after truth, sees no indecorum in any earnest line of study, and recognizes no impropriety in looking at objects under an intense light and in good focus."[71]

No longer adhering to the old idea that sexual urges were shameful, many authors began to celebrate sexuality precisely because of its animalistic and natural functions, a change that can be traced to Darwin's explanation of sexual selection in *The Descent of*

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[69] For work on medical and lay sexual advice books in the nineteenth century, see, Helen Lefkowitz Horowitz, *Rereading Sex: Battles over Sexual Knowledge and Suppression in Nineteenth-Century America* (New York: Alfred A. Knopf, 2002), which focuses on sexual materials in print between 1820 and 1870 and on the origins and ramifications of the Comstock Law of 1873. Ronald G. Walters, *Primers for Prudery: Sexual Advice to Victorian America* (Englewood Cliffs: Prentice-Hall, 1974). This book consists of annotated excerpts from many nineteenth-century advice books and focuses on their emphasis on purity and sexual restraint; David J. Pivar, *Purity Crusade: Sexual Morality and Social Control, 1868-1900* (Westport: Greenwood Press, 1973). See also John S. Haller Jr., and Robin M. Haller, *The Physician and Sexuality in Victorian America*, (Urbana: Univeristy of Illinois Press, 1974), which also focuses on purity books.

[70] Jeffrey Moran, *Teaching Sex: The Shaping of Adolescence in the 20th Century* (Cambridge: Harvard University Press, 2000), 7. Darwinian evolution was central to the thinking of G. Stanley Hall, one of the subjects of Moran's study, but in his "invention" of adolescence, Moran argues, Hall focused on the distinction between savage and civilized made manifest by sexual restraint.

[71] James Foster Scott, *The Sexual Instinct, Its Use and Dangers as Affecting Heredity and Morals, Essentials to the Welfare of the Individual and the Future of the Race*, 2d ed. (New York: E. B. Treat and Company, 1908), 12.

Man. Discussing sex in terms of animals was, as many advice book authors stated, an attempt to rid sex of "shame" and "superstition" and focus instead on its scientific basis and evolutionary importance.[72] As Annie Wolf argued in her manual, *The Truth About Beauty* (1892):

> Young womanhood is taught to hang its head at the thrill of love, which even the animals, by the merest brute instinct, are proud of. . . .When will humanity learn that the passional side of nature may be developed without lascivious thought or immoral practice, and that the woman in whom passion plays no part is too insignificant in structure to play any part in the scheme of creation? But every day brings us nearer a more reasonable understanding of these energies.[73]

Wolf was just one of many authors who compared human and animal courtship and mating and found humans' wanting. No longer a source of mortification, "animalistic" urges became instead something to be emulated and appreciated. Of course, nineteenth-century conversations about sex often included many contradictory voices, but Darwinian evolution introduced animalistic thinking to human sexuality, signaling a less judgmental, less moralistic approach to human sexual activity as well as the acceptance of sex as a valid topic for scientific inquiry and explanation.

Savage and Civilized Sexuality

The explicit link Darwin drew between animal rut and romantic love, however, made some of even the most rational evolutionists uncomfortable. To soften the blow that romantic love was merely a biological urge, some evolutionists, anthropologists, and

[72] Morley, *Life and Love*, 9.
[73] Annie Wolf, *The Truth About Beauty* (New York: Lovell, Coryell, and Company, 1892), 116-117.

courtship experts argued that marriage indicated civilization and evidenced human triumph over their mammalian ancestry. Romantic love may have been an animalistic, biological urge, but marriage signified development and, to many, a racialized distinction between white and African or native peoples. The institution of marriage took on heightened importance as evolutionists and anthropologists argued that it was one of the few things separating "civilized" from "savage" and, thus, a vital step on the evolutionary ladder. As historian Elizabeth Fee explains, Victorian anthropologists believed savages exercised "natural" sexuality, whereas civilized Victorians had evolved beyond it to embrace patriarchal marriage and monogamy.[74]

In the final decades of the nineteenth century, the lines between evolutionary scientists and anthropologists blurred. *The Descent of Man* covered the evolution of humans, their emotions and behaviors, and civilization itself and relied extensively upon the work of Victorian anthropologists for cross-cultural evidence of sexual selection and for details about how modern civilization evolved from apes and, later, "savages."[75] Darwin used existing "uncivilized" tribes, like the people of Tierra del Fuego whom he encountered during his voyage on the Beagle, to elucidate what prehistoric "savages" may have been like and to explain how "civilized" humans evolved from them, positing a racial hierarchy between "savage" (low) and "civilized" (high).[76]

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[74] Elizabeth Fee, "The Sexual Politics of Victorian Social Anthropology," in *Clio's Consciousness Raised: New Perspectives on the History of Women*, ed. Mary Hartman and Lois Banner (New York: Harper Torchbooks, 1974): 86-102.

[75] For a discussion of Darwin's relationship with anthropology, see Rosemary Jann, "Darwin and the Anthropologists: Sexual Selection and its Discontents," *Victorian Studies* 37:2 (Winter 1994): 287-306.

[76] Scholars have written extensively on the political, social, and cultural ramifications of this anthropological hierarchy that pervaded late nineteenth- and early twentieth-century American thought. See, for example, Gail Bederman, *Manliness and Civilization*: *A Cultural History of Gender and Race in*

Darwin's use of anthropological literature, however, was often at cross-purposes with his own goals. Darwin reasoned from animals to humans and celebrated our animal ancestry, whereas many anthropologists reasoned from humans backward to explain how we had shed our animal nature. As such, "savage" sexuality posed problems for Darwin's analogy between humans and animals because it represented a break in the chain. Rosemary Jann has argued that even though Darwin cited many anthropological texts, what he wanted to say about them differed from what the anthropologists themselves attempted to argue. According to Jann, the anthropologists asserted that self control and monogamy were "the hard won fruit of cultural development," whereas for Darwin's human-animal continuum to succeed, he needed to say they were "natural."[77]

Nineteenth-century prescriptive literature reflected this contradiction. While some tracts emphasized human and animal continuity (sex is natural), others suggested that marriage and sexual restraint were themselves evidence of evolutionary advancement, as well as code words for white civilization.[78] After reviewing courtship practices among animals, Henry T. Finck, for example, moved on to "Love Among Savages," whom he claimed were "strangers to love." "In passing from animals to human beings we find at first not only no advance in the sexual relations, but a decided retrogression," Finck observed. "Among some species of birds, courtship and marriage

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the United States, and Louise Michele Newman, *White Women's Rights: The Racial Origins of Feminism in the United States*.

[77] Jann, "Darwin and the Anthropologists," 298. See also, Greta Jones, "The Social History of Darwin's *Descent of Man*, Economy and Society 7.1 (February 1978): 1-23. Jones discusses the intellectual context of the *Descent* and Darwin's symbiotic relationship with anthropologists.

[78] Haller and Haller, *The Physician and Sexuality*, 126-127.

are infinitely more refined and noble than among the lowest savages. . ."[79] In Finck's estimation, white "civilized" men and women had more in common with birds and higher vertebrates than with uncivilized people, an observation with which Darwin would have agreed. Pseudo-scientific rationales for white racial superiority have a long history in America, dating back long before Darwin; but, what is new in these books is the embrace of human solidarity with animals, especially in terms of courtship and mating practices, over human solidarity with one another.

Of course the racist implications of the distinction between "savage" and "civilized" sexuality did not go unchallenged. Ida B. Wells-Barnett famously upended American assumptions of white male chivalry, white female restraint, and black licentiousness in her anti-lynching campaign. Similarly, Archibald Grimke and W. E. B. Dubois relied upon popular understandings of the Darwinian theory of sexual selection to challenge racial double standards in regard to sex. In 1906, Archibald Grimke advocated the abolishment of the sexual double standard that allowed men of the dominant class to select women from the dominant class as wives and women from the lower classes as mistresses, while denying lower-class men access to upper-class women. Turning the anthropological argument for civilized marriage on its head, Grimke claimed it was the white man whose sexual instinct approached that of a "state of nature" when it came to seducing women of color. "The natural law of sexual selection determines mating in the one case as truly as in the other, i.e., in the case of concubinage as in that of marriage,"

[79] Henry T. Finck, *Romantic Love and Personal Beauty: Their Development, Causal Relations, Historic and National Peculiarities* (New York: The Macmillan Company, 1912), 55. This book was first published in 1887.

Grimke argued, but the sexual double standard between white men and black people prohibited the natural operation of sexual selection.[80] As a result, he concluded, the double standard needed to be abolished.

W.E.B. Du Bois echoed this theme in 1910. He argued that the laws prohibiting intermarriage were "simply wicked devices to make the seduction of women easy and without penalty." Instead, he proposed "national training in ethics of marriage and the responsibilities of sexual selection."[81] Scholars have often wondered why there was not a sustained African American outcry against Darwinian evolution, but, as Eric D. Anderson has shown, African Americans recognized that there was nothing inherently racist in evolutionary theory, even though many people applied it in racist ways.[82] Here, Grimke and Du Bois did not dispute sexual selection, but rather urged that it be allowed to operate in a more "natural" way, free from arbitrary laws and restrictions.

Darwin's views on race were no doubt complicated and in some cases contradictory. Even though he detested slavery throughout his life and supported the monogenists' claims that humans descended from common ancestors (as opposed to the polygenists who argued that Africans were literally different species than Europeans and Americans), his theory of sexual selection inadvertently aligned him with those who held morally objectionable views about race. For starters, Darwin attributed the development of different races to sexual selection. He suggested that each race possessed "its own

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[80] Archibald Grimke, "The Heart of the Race Problem," *The Arena* 35 (March 1906): 274-278.

[81] W.E. Burghardt Du Bois, "Marrying of Black Folk," *The Independent* 69, 13 October 1910, 812-813.

[82] Eric D. Anderson, "Black Responses to Darwinism, 1859-1915," in *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender*, ed. Ronald L. Numbers and John Stenhouse (Cambridge: Cambridge University Press, 1999): 247-266.

innate standard of beauty;" thus, men were most likely to mate with the women who best exemplified the traits that their particular group found most attractive.[83] Over time, such features became increasingly prominent and ended up distinguishing one race from another:

> Women, however, certainly transmit most of their characters, including beauty, to their offspring of both sexes; so that the continued preference by the men of each race of the more attractive women, according to their standard of taste, would tend to modify in the same manner all the individuals of both sexes belonging to the race.[84]

Because individual preferences adhered to shared racial beauty standards, Darwin posited that the races diverged at some point in the far distant past and that they might best be considered "sub-species," an argument that appealed to those in favor of the legal separation of races.

Darwin's incorporation of Victorian anthropology and other "soft" sciences was another reason that his theory of sexual selection was attacked by scientists in the nineteenth and early twentieth centuries, though it is important to note that when Darwin wrote the *Descent* no "hard" sciences of sex or attraction existed. Though it fit in well with nineteenth-century anthropologists' observations of tribal mating customs and aesthetic standards, Darwin's theory that sexual selection accounted for the development

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[83] This assertion prompted tremendous discussion among scientists, anthropologists, and laypeople. See, for example, "The Negro," *Appleton's Journal* 10, 16 August 1873, 214-215: "On the whole I am inclined to believe that the negroes have much the same standard of beauty as ourselves. . . .It cannot be doubted that sexual selection has been an agent in producing the physical differences which exist between the sexes, and also between the races, of mankind;" "Scientific Gossip," *The New York Times*, 26 February 1882, 4. This was a blurb about Mr. F. Ram's latest pronouncement about the different ideas of beauty among the races. Ram accepted "the well-known fact that the different races of mankind have different ideas of beauty." And modified it accordingly: "The visible signs of the possession of those qualities of body and mind which have tended, in the environment of a race, to the production of the largest number of descendents constitute beauty among that race. Of course, it will be seen that this law depends altogether on the more or less free operation of sexual selection."

[84] Darwin, *Descent* II, 354, 372.

of different races was contested by members of the scientific community who were skeptical of sexual selection in general. Alfred Russel Wallace, for example, argued that different races evolved in different regions because natural selection, not sexual, determined the traits best suited to each environment. Nevertheless, Darwin's theory of racial development was frequently repeated in anthropological and popular literature and his assertion about the evolutionary power of female beauty went largely uncontested.

Is Beauty only Skin Deep?

> "We do fall in love, taking us in the lump, with the young, the beautiful, the strong, and the healthy; we do *not* fall in love, taking us in the lump, with the aged, the ugly, the feeble, and the sickly. The prohibition of the Church is scarcely needed to prevent a man from marrying his grandmother. Moralists have always borne a special grudge to pretty faces; but, as Mr. Herbert Spencer admirably put it (long before the appearance of Darwin's selective theory), 'the saying the beauty is but skin-deep is itself but a skin-deep saying.'"[85]
>
> Grant Allen, 1889

In addition to establishing that humans were close kin to animals, Darwin also hoped that *The Descent of Man* would offer a naturalistic, as opposed to divine, explanation of beauty. One of the sticking points for skeptics of natural selection had been that the theory could not account for the loveliness that people saw all around them. Since beauty did not necessarily indicate fitness, especially as Darwin described the struggle for existence, how then did a bird's bright feathers, the elaborate hues of flowers, or a woman's lustrous hair evolve? Opponents of natural selection countered that the

[85] Grant Allen, *Falling in Love, with other essays on more exact Branches of Science*, (London: Smith, Elder, and Co., 1889), 4.

only possible explanation for earthly beauty was divine intervention. With the *Descent*, Darwin hoped to put this argument to rest with the introduction of his theory of sexual selection, which he claimed accounted for the persistence of beauty in both the plant and animal kingdoms (because individuals consistently selected mates according to shared, species-wide aesthetic standards). George Romanes, one of a handful of faithful adherents to sexual selection, observed:

> Although the explanatory value of the Darwinian theory of natural selection is, as we have now seen, incalculably great, it nevertheless does not meet these phenomena of organic nature which perhaps more than any other attract the general attention, as well as the general admiration, of mankind: I mean all that class of phenomena which go to constitute the Beautiful.

According to Romanes, natural selection explained the "major fact of utility" while sexual selection explained the "minor fact of beauty."[86] Darwin no doubt would have appreciated Romanes' support but quibbled with his use of the term "minor." To Darwin, beauty, in humans and in animals, was anything but minor. After all, the presence or absence of beauty determined who mated with whom, and, thus, the future of the species.

Following the publication of the *Descent*, beauty, too, became a popular topic of scientific inquiry. In 1881, the *Medical and Surgical Reporter* noted:

> Now that aesthetics are ruling the day, and the pursuit of the beautiful is coming to be looked upon as one of the properest employments of life, it is well to consider the aesthetic sense from a broadly physiological point of view. Within the last score of years it has, in fact, come to be accepted as one of the most potent influences in modifying organic nature throughout nearly all the its realms.[87]

Some scientists affirmed Darwin's assertions that appreciation of beauty was a cross-species phenomenon, while others argued that only civilized humans could appreciate it.

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[86] George Romanes, *Darwin and After Darwin*, 379.
[87] "Form and Color in Evolution," *Medical and Surgical Reporter* 45, 3 December 1881, 634.

M. Charles Levegue examined animals' preferences and argued that they recognized beauty only within their species, and Henry T. Finck argued that appreciation of beauty was a telltale sign of civilization.[88] Both authors misinterpreted Darwin's use of the term "beauty," however; Darwin was not saying, for example, that a peahen could recognize a Rembrandt, only that the peahen possessed an innate sense of what she valued in a peacock's appearance. Grant Allen popularized the essence of Darwin's remarks about beauty: "every lovely object in organic nature owes its loveliness direct to sexual selection. . . . I need not elaborate this point. Darwin has already made it familiar to most of us. Throughout the animal world, almost every beautiful hue, almost every decorative adjunct, is traceable to the action of these 'lower' passions."[89]

While scientists and laypeople may have questioned whether or not animals chose their mates according to aesthetic standards, few doubted that this occurred among humans. Darwin's observations that "women have long been selected for beauty," had subsequently become more beautiful than men, and that dominant men had first dibs on mates affirmed Victorian gender roles and rang true with people's general experiences.[90] In 1925, noted British medical anatomist G. Elliot Smith predicted:

> it is possible in the case of the Human Family Darwin's claim for sexual selection may find much ampler confirmation than most biologists are inclined to attach to it in the case of other organisms. No one can question the appeal of beauty to mankind, and

[88] M. Charles Lévégue, "The Sense of the Beautiful in Brutes," (translated from Revue des deux Mondes) *Presbyterian Quarterly and Princeton Review* 9 (January 1874): 126-142. See also, Henry T. Finck, "The Influence of Beauty on Love," *The Cosmopolitan* 30 (April 1901): 589-598. He argued that beauty played a role in courtship only among the civilized races; others adorned themselves for purposes of communication.

[89] Grant Allen, "Physical Beauty," *New York Times*, 10 June 1894, 26. For an example of a similar argument, see Professor Woods Hutchinson, "The Strength of Beauty," *The Open Court* 10, 2 July 1896, 4969-4971.

[90] Darwin, *Descent* II, 371-372.

> it is difficult to believe that an attraction so universal and deep-seated could possibly have been devoid of effect in the process of transmuting the uncouth form of an Ape into the graceful figure of a human being.[91]

Smith's forecast for the twentieth century proved accurate, and the seeds for such research were planted in the nineteenth. The decades following the publication of the *Descent* saw a flurry of scientific and popular discourse about female beauty, especially in relation to courtship and mating decisions. Most authors agreed that, at least among humans, female beauty was a powerful agent.

Arguments for the evolutionary importance of female beauty also had the corollary benefit of dismissing feminist demands or dooming them to failure from an evolutionary perspective. Rather than indulge in the "overwhelming" feminine urge for self-improvement, Professor Woods Hutchinson advised:

> Indeed, we have no hesitation in declaring that whatever may be the "chief duty of man," the "chief duty of woman" is to be beautiful. Not only in mind and character, but also in face and form, in voice and in dress. And I am glad to say that woman has always proved faithful to her mission. . . . Woman's love of beauty has done well-nigh as much for the world as man's love of liberty.[92]

According to Hutchinson, women's evolutionary duty was to be beautiful. In explaining why feminist demands could not be accomplished by evolutionary means, pioneering gynecologist Ely Van De Warker noted, "we have shown that the laws of sexual selection and of population are entirely opposed to the increase of women thus favored [those who were highly educated or who chose to pursue careers], and in favor of the average woman by a large per centum." According to Van De Warker, "men and women do not appear to wed out of free choice, but in obedience to law which finds its expression in individual

[91] G. Elliot Smith, *The Evolution of Man, Essays* (New York: Oxford University Press, 1925), 154.
[92] Hutchison, "The Strength of Beauty," 4970.

preferences."[93] Among these preferences was the widespread propensity of men to seek feminine women, leaving the "strong-minded" ones less likely to procreate and pass on their traits. J.V. Shoemaker put this even more plainly in 1891, "[s]exual selection has generally stood [strong-minded women] aside from relation to posterity."[94] Over time, strong-minded women would die out, not procreate, leaving beautiful women to reproduce and increase the overall aesthetic standards of the race. From an evolutionary perspective, it was far better for women to be beautiful than smart.[95]

Sexual selection reverberated far beyond the scientific community as laypeople, too, grasped the theory's implications for courtship and marriage. Courtship advice authors may not have been keen to the scientific debates regarding the efficacy of sexual selection in the evolutionary process (though I suspect many were), but they nevertheless popularized a version of sexual selection that heightened the importance of female appearance, equated outer beauty with fertility and personal probity, prioritized reproduction, and encouraged strict gender binaries. Many marriage and beauty guides made explicit references to *The Descent of Man*, while others relied on Darwinian terms, such as "sexual selection," "coloring," and "charm," that would have been readily

[93] Ely Van De Warker, M.D., "The Relations of Women to the Professions and Skilled Labor," PSM 6 (February 1875): 459.

[94] J.V. Shoemaker, "Source of Beauty," *Current Literature* (June 1891): 221.

[95] See also, Samuel J. Holmes, *The Trend of the Race, A Study of Present Tendencies in the Biological Development of Civilized Mankind* (New York: Harcourt Brace, 1921). The chapter on "sexual selection" noted, "In attempting to estimate how sexual selection has been affected by our modern civilization it must be borne in mind that we have to reckon with various tendencies which may work to produce opposed, or at least different results. As common observation shows, chances for marriage are considerably reduced among the conspicuously ugly" (226); "It is, *a priori*, probable and in accord with common observation that the most beautiful girls are apt to be chosen as wives. Intellect in women may be preferred in general, not withstanding the fact that many men set little store by this quality in the other sex, and may even prefer an amiable sort of stupidity in their wives so that they can enjoy a sense of their own mental superiority" (228).

identifiable to contemporary readers. Henry Finck, for example, drew heavily on Darwin's observations of nature, as well as on his theories of natural and sexual selection, in his advice book, *Romantic Love and Personal Beauty* (1887). After comparing and contrasting womanly beauty in various nations, Finck concluded that the sway of natural selection was on the decline, "hence Sexual Selection has freer scope to modify the human race into harmony with aesthetic demands," ushering in the age of "Romantic Love and Personal Beauty."[96] Another courtship expert clarified that she did not necessarily agree with Darwin's suggestion that different races had different standards of beauty, but she wholeheartedly endorsed his idea that female beauty served important evolutionary purposes.[97] "The culture of personal beauty, and, in our age, especially of female beauty, is of the first interest and importance," she exhorted. "It is impossible to separate people from their looks. A woman's natural quality is to attract, and having attracted, to enchain."

Dr. J.V. Shoemaker's *Heredity, Health, and Personal Beauty* (1890) contained nearly forty chapters detailing every aspect of personal health and beauty from household remedies for freckles to advice about how to walk gracefully. He also explained to readers how sexual selection contributed to female beauty and predicted that it would only continue to increase. He began with a discussion of organic evolution and whether or not acquired traits could be transmitted, the Lamarckian theory discredited by August Weismann in the 1890s. For Shoemaker's theories to be especially persuasive, he grounded them on the premise that acquired traits could be passed on to offspring. Thus,

[96] Finck, *Romantic Love*, 542-543.
[97] Mrs. H.R. Haweis, *The Art of Beauty* (London: Chatto and Windus, 1878), 7,1. RBMSCL.

a woman was not simply trying to become more beautiful for herself, but to improve the looks of future generations of her offspring, heightening the evolutionary importance of female beauty.[98]

The prominence of Darwinian language in courtship advice books represented a significant departure from the tone of earlier manuals. For example, in 1870, the year before Darwin published the *Descent*, John William Kirton, author of *Happy Homes and How to Make Them*, advised men to seek "the daughter of a good mother" with "suitable temperament," who knew "the worth of money" and possessed a "religious character."[99] Within a few short years, however, many marriage experts offered radically different advice to those hoping to wed. Jettisoning moral, intellectual, and religious qualities, courtship guides published after 1870 frequently urged men and women to select their partners based on physical appearance and to develop their own good looks in order to attract suitors. As Mrs. H.R. Haweis cautioned in *The Art of Beauty* (1878), there were two types of women: the visible and the invisible. "The distinguishable ones marry -- those who are beautiful, or magnetic in some way, whose characters have some definite colouring, and who can make their individuality felt."[100] One bachelor posited that perhaps "spinsters" remained single because "they could not wield the magic wand of feminine beauty, that limitless power over man." As everyone knew, "[w]oman does not select man and he will always seek that which is physically attractive and that which

[98] J.V. Shoemaker, M.D., *Heredity, Health, and Personal Beauty* (Philadelphia: F.A. Davis, 1890), 103-109 and chapter 2.

[99] John William Kirton, *Happy Homes and How to Make Them; or, Counsels on Love, Courtship and Marriage* (London: F. Warne and Co, 1870). HOW.

[100] Haweis, *The Art of Beauty*, 263.

approximates to his ideal of feminine beauty. All the arguments at Women's Congresses will not change his organism."[101]

Marriage experts asserted that beauty indicated fertility, goodness, and health, and scores of books and articles encouraged women to develop their personal charms in order to attract men. The ominously titled *The Ugly Girl Papers* (1875) reminded readers that looks alone attracted mates: "How dexterously Nature inserts the reward of beauty before the self-denials needed to gain health! A thoroughly healthy woman never is unbeautiful. She is full of life, and vivacity shines in her face and manner; while her magnetism attracts every creature who comes within its influence."[102] The importance of female beauty could hardly be overstated. Mrs. Haweis claimed that the attainment of beauty should be the top priority of all women, even "bluestockings," because "men, so to speak, pitch upon girls they can see: those who are completely negative, unnoticeable, colourless, formless, invisible -- are left behind."[103] A study of female graduates of the Southwestern State Normal School of Pennsylvania confirmed the importance of female beauty in the marriage market: it claimed that women whom "independent observers" ranked as the most attractive 20% were significantly more likely to marry than their homelier peers.[104] The widespread acceptance of Darwin's theory of female beauty simultaneously made it an essential evolutionary agent, a necessity for mating, and a moral good.

Scientists and marriage experts also reached a consensus about what constituted female beauty. At the top of their lists was a "good form," recognizable by large breasts

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[101] Louis Lombard, *Observations of a Bachelor* (Boston: D. Estes and Company, 1909), 67, 71.
[102] S.D.P. *The Ugly Girl Papers, or Hints for the Toilet* (New York: Harper and Brothers, 1875), 107. RBMSCL.
[103] Haweis, *Art of Beauty*, 263
[104] Quoted in Holmes, *The Trend of the Race*, 227.

and broad hips, the visual embodiment of female fertility. A pretty face came in a distant second. An attractive figure, explained leading physical culturalist Bernarr MacFadden, was "Nature's way of proclaiming that a woman has a superior maternal capacity. This is first shown by a broad bosom and a perfectly developed bust."[105] Mrs. E.R. Shepherd agreed that a shapely figure was paramount for women: "Science finds that a well-proportioned, finely-developed woman will invariably have a full bust and abdomen and comparatively narrow shoulders. A woman is broad at the hips – from there she tapers both ways.. . Science does, then, coincide exactly with the popular taste for a small waist."[106] Dr. Benjamin Allan advised his young readers, "A round, plump figure with an overflow of animal life is the woman most commonly sought for."[107]

At the bottom of experts' lists of desirable traits were intelligence, character, and religion, not necessarily in that order, a complete reversal from the 1870 advice book. As one bachelor explained, "[t]he erudition of a girl never fanned the flames of love. Gaiety and common sense resulting from a sound body, and above all else, physical attractiveness, are the magnets that draw men's hearts."[108] He did not explain exactly how common sense could result from a sound body, but the overall message was clear: you can judge a book by its cover. Similarly, Dr. Benjamin Allan put "beauty" at the very top of his list of reasons "why men love women," while "intelligence," which he defined as having "mental qualities," and "religion" ranked at the very bottom, a notch

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[105] Bernarr Macfadden and Marion Malcolm, *Health—Beauty – Sexuality from Girlhood to Womanhood* (New York: Physical Culture, 1904), 90-91.

[106] Mrs. E. R. Shepherd, *For Girls: A Special Physiology, Being a Supplement to the Study of General Physiology* (New York: Fowler and Wells, 1884), 67-68. RBMSCL.

[107] Benjamin A. Allan, M.D., *Facts for Women* (Jersey City: Alice Stern, 1920), 31. RBMSCL.

[108] Lombard, *Observations of a Bachelor,* 71.

below "feet and ankles."[109] Readers of Macfadden's *Physical Culture* magazine listed "health" as their first criteria of an "ideal wife," followed closely by "looks;" "character," the only personality trait to warrant an appearance on the list, came in second-to-last, drawing a mere 5% of the vote.[110] According to these guides, female beauty served as an index of social and intellectual characteristics previously considered the domain of one's personality, faith, or family standing. As a result of the pervasive influence of sexual selection, popular courtship standards shifted from demanding personal virtue to seeking physical attraction, and they heightened the importance of female beauty by giving it a scientific mandate.[111]

In the final decades of the nineteenth century, women heeded the call to display large breasts, natural or otherwise. As a point of comparison, a beauty guidebook published in 1859, more than ten years prior to the *Descent*, mentioned breasts only briefly and advised that they should be: "well developed, but not so large as to be at all out of proportion with the rest of the figure. The breasts must be gracefully rounded, smooth, equal in size, and distinctly separated."[112] The accompanying illustration (figure 9) depicted relatively small breasts. Change was on the horizon, however; in 1858 Anne McLean of New York filed the first patent for false bosoms, a wire cone stuffed with bark, grass, or hair. In the ensuing years, inventors, two-thirds of whom were women, filed patents for a variety of contraptions, creams, suction devices, and pads that

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[109] Allan, *Facts for Women*, 31.

[110] Quoted in Holmes, *The Trend of the Race*, 227.

[111] The idea that beauty serves evolutionary purposes remains popular today. See, Nancy Etcoff, *Survival of the Prettiest: The Science of Beauty* (New York: Doubleday, 1999). Etcoff is on the faculty at Harvard medical school and researches sex differences in the brain.

[112] D.H. Jacques, *Hints Toward Physical Perfection; or, the Philosophy of Human Beauty* (New York: Fowler and Wells, 1859), 42.

ostensibly enhanced the female bust and/or made the waist appear small by comparison.[113] According to Teresa Riordan's study of beauty patents, the "first US patent to forthrightly acknowledge that its purpose was to increase the size of breasts" was issued in 1889 for a device that was a combination of "bust developer/bosom form."[114] A few years later, the Sears and Roebuck catalogue began selling the popular "Princess Bust Developer" system which included a large suction cup and breast cream. Big busts had become big business.

Perhaps in response to the craze for enhanced breasts, popular courtship standards demanded that female beauty, including bosoms, be "natural." Physical cultural expert Bernarr MacFadden spoke for many others in warning of a "false sexual selection" by which men had been conditioned to admire artificial beauty (fancy clothes, padded bras, and makeup), instead of natural, maternal traits, which sexual selection favored.[115] MacFadden's warning was part of the larger nineteenth-century turn toward natural beauty, as evidenced in healthy, athletic bodies, little or no makeup, shiny hair, and radiant skin, but many courtship experts singled out "falsies" as particularly loathsome.[116]

True sexual selection, as described in *The Descent of Man* and elaborated on by scientists and marriage experts, compelled men to choose only the most "womanly" women and women the most "manly" of men because such matches were deemed the

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[113] Teresa Riordan, *Inventing Beauty: A History of the Innovations that Have Made Us Beautiful* (New York: Broadway Books, 2004), 72. Chapter 3 "Breasts" includes copies of many patent drawings from the late 19th century as evidence of the increasing importance of large breasts. For a history of the bra, see Jane Farrell-Beck and Colleen Gau, *Uplift: The Bra in America* (Philadelphia: University of Pennsylvania Press, 2002).

[114] Riordan, *Inventing Beauty*, 84.

[115] MacFadden, *Health-Beauty*, 88.

[116] For an excellent history of changing ideas of beauty in America, see Lois Banner, *American Beauty* (New York: Alfred A. Knopf, 1983). She discusses "the advance of naturalness" in chapter 7.

most fertile. The pioneering sexologist Havelock Ellis argued that a "large part of the joy that men and women take in each other is rooted in this sexual difference."[117] Evolutionist George Romanes concurred in *Popular Science Monthly*, explaining that as a result of sexual selection "men always admire in women what they regard as distinctively feminine qualities of mind, while women admire in men the distinctively masculine."[118] Or, in the colorful words of Bernarr MacFadden, "[m]oney does not bring happiness to a wife. *But manliness in her husband does.* A manly man! That's the kind of mate your womanly young heart wants. See that you secure such an one."[119] For an explanation of this truism, MacFadden turned to the animal kingdom:

> Throughout the entire animal kingdom the male is the natural protector of the female and the offspring. Brave sons and energetic, strong-minded daughters descend from brave fathers, and therefore instinct leads women to crave courage in men. . . . Women long for nobleness, magnanimity, dignity, majesty and self-command in the man they would love. All highly sexed men possess such qualities in common with the lion and other superb animals of the animal kingdom.

Though he sought to understand human sexuality in terms of animals, MacFadden naturalized culturally-imposed gender differences. The rhetoric of sexual selection, together with the increased importance Darwin attributed to reproduction in marriage, encouraged men and women to seek mates based on sexualized images of each other.

Such polarized gender ideals created a crisis for women whose appearance was somewhat closer to the middle of the male/female continuum: those who suffered from excessive facial or body hair. In *The Descent of Man*, Darwin posited that, much like a

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[117] Ellis, *Man and Woman*, 426-427.
[118] Romanes, "Mental Differences of Men and Women," 391.
[119] MacFadden, *Health-Beauty*, 118.

peacock's bright plume, male beards had developed because females preferred them, whereas, he explained, women had lost facial hair as men selected the least hairy mates.[120] Other naturalists had suggested that humans had less hair than their fellow primates because of natural selection, but Darwin doubted that "the action of the sun" or other environmental factors could have caused humans to lose their hair when their close animal kin retained so much of theirs. Rather, he suggested that "man, or rather primarily woman, became divested of hair for ornamental purposes; and according to this belief it is not surprising that man should differ so greatly in hairiness from all his lower brethren, for characters gained through sexual selection often differ in closely-related forms to an extraordinary degree."[121] Over time, women had become the less hairy of the two sexes and hairlessness among women became a highly valued trait. Compared with other animals that differed widely in appearance according to sex, facial and body hair were among the few visible signs separating men from women and, thus, important markers of masculinity and femininity and of evolutionary advancement. Hairy women, then, were not only less female than their smooth-skinned sisters but also more closely related to their primate cousins.

The cultural importance of body hair, or lack thereof, was so pervasive that Darwin's hypothesis about the loss of human body hair through sexual selection was among the most controversial elements of the *Descent*. Wallace agreed with Darwin that natural selection alone could not account for the loss of body hair, a potentially useful

[120] "The absence of hair on the body is to a certain extent a secondary sexual character; for in all parts of the world women are less hairy than men. Therefore we may reasonably suspect that this is a character which has been gained through sexual selection." Darwin, *Descent II*, 372.

[121] Darwin, *Descent* I, 49-50.

trait, but he argued that only divine intervention could have caused such a miraculous development. Grant Allen, writing in opposition to Wallace's "deus ex machina" explanation, offered his own theory based on the idea that friction accounted for the loss of human back hair. Though, as Allen admitted:

> such a partial loss will not fully account for his present very hairless condition over his whole body (with trifling exceptions) in the average of all sexes, races, and ages. For this further and complete denudation I think we must agree with Mr. Darwin in invoking the aid of sexual selection, especially when we take into account the ornamental and regular character of the hairy adjuncts which man still retains. [122]

Scribner's magazine dismissed Allen's theory as "scientific foolishness," preferring instead to believe that "man was made originally with a hairless skin for beauty's sake, and because he was endowed with the ability to manufacture his own clothing, and with the power to tint and fashion it in correspondence with his ideas of fitness and attractiveness."[123] Another author speculated that male beards might have evolved as a result of female preferences in the distant past, but, in modern times, "wealth will cover the bald head; intellect is more valued than whiskers, and the length of a rentroll counterbalances the shortness of a beard."[124]

Darwin's speculations about male and female body hair sparked vigorous debates about the evolutionary significance of hair and cemented the idea that hair was one of the clearest markers of sexual difference and evolutionary progress. In 1886, Virgil Eaton, a New England reporter, published an article in *Popular Science Monthly* prophesying that

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[122] Grant Allen, "A Problem in Human Evolution," *The Eclectic Magazine of Foreign Literature* 30 (July 1879): 60.

[123] "Scientific Foolishness," *Scribner's Monthly Magazine* 18 (August 1879): 619-620.

[124] E. Kay Robinson, "The Man of the Future," *The Eclectic Magazine of Foreign Literature* 38 (July 1883): 62.

the coming man would be bald. As evidence, he cited the numerous bald heads he had counted at church, in the theater, during lectures, and at places of public amusement. Interestingly, he noted a high percentage of shiny heads at the opera and the highest percentage at a lecture of Matthew Arnold's, the British literary critic. In contrast, he found the lowest rate at the "dime museums and cheaper variety performances." Eaton's observations of male baldness reflected late nineteenth-century fears about the loss of masculinity and virility. Hair loss afflicted effete opera fans and would-be literary critics at a much higher rate than it did workingmen and "savage races" who "live out-doors most of the time." More frightening, he predicted that if the fad for "banging" and "frizzing" continued, women, too, could expect to lose their hair.[125]

In response to Eaton's dire prediction of a "bald-headed and toothless future," Miss E. F. Andrews dismissed any insinuation that the "coming woman" would lose her hair or that many women currently suffered from such a fate. While biologists were "pretty well agreed that, if the present course of human evolution remains unchecked, the coming man is in serious danger of evolving into a bald-headed animal," the coming woman would undoubtedly be saved such a fate. According to Miss Andrews what saved women from this "defect as destructive of beauty as of comfort" was sexual selection. Compelled by financial necessity as well as "public sentiment against 'old maids,'" women could not be too picky when it came to the hairiness of their suitors. Men, on the other hand, generally wielded the power of selection and, thus, "it goes without saying

[125] Virgil G. Eaton, "A Bald and Toothless Future," PSM 29 (October 1886): 803-806. Eaton predicted a toothless future as well because people had taken to using knives and forks and ceased "tearing [meat] off from the bones in great junks, and chewing it like beasts of prey" (805). As a result of disuse, future generations could expect to inherit few teeth.

that a bald-headed woman would stand little chance, to use Mr. Darwin's argument, of leaving offspring to inherit her deficiencies."[126] Much like the "strong-minded woman" Dr. Van de Warker wrote about, the bald-headed woman would simply die off.

Equally as troubling to women as the possibility of thinning hair on their heads was the reality of unwanted hair on their chins and upper lips. In 1878, at the very first meeting of the American Dermatological Society the doctors coined a term for this dreaded condition: "hypertrichosis." Previously tolerated as natural or normal, excessive female facial and body hair was now an unsightly disease to be combated. Beauty historian Riordan argues that in the second half of the nineteenth century facial hair on women was considered "especially repulsive" because of the evolutionary significance attributed to male beards as well as the popular equation of beards with manly soldiers and men moving west. Thus, the hint of a beard on a woman immediately threw her femininity into question. Secondly, historian Rebecca Herzig, who has written an article on the treatment of hypertrichosis between 1870-1930, argues that "[a]bundant body hair, newly attached to fears of evolutionary atavism and transgressed sexual roles, became an individual pathology, an 'evil' awaiting professional medical intervention."[127] Not only were hairy women unfeminine, they threatened evolutionary advance and were in need of remedy.

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[126] Miss E.F. Andrews, "Will the Coming Woman Lose Her Hair?," PSM 42 (January 1893): 370-372.

[127] Rebecca Herzig, "The Woman Beneath the Hair: Treating Hypertrichosis, 1870-1930," *NWSA Journal* 12, Special Issue: The Science and Politics of the Search for Sex Differences (Fall 2000), 53. Herzig locates the hypertrichosis craze in terms of evolutionary fears and the rise of evolutionary anthropology, but she does not specifically discuss sexual selection or Darwin's remarks about male beards, which informed those anthropologists.

Hypertrichosis, dermatologists claimed, traumatized the majority of their female patients and demanded the profession's immediate attention. One doctor reported that she knew of "one beautiful and attractive woman who would not marry, lest the hairy tendency which had made her own life a wretched one, and which she had tried by every known artifice to conceal, might be transmitted to her female offspring."[128] In the decades that followed its discovery, physicians devoted undue attention to the study and treatment of hypertrichosis. A review of an 1896 dermatological textbook noted critically that the new book granted this disease twenty pages of text and seven plates "representing freaks of nature with respect to hairiness," while ring worm, a far more prevalent disease, "occupie[d] less than two pages"(figure 10).[129] Herzig found that women repeatedly told their doctors that they wanted to return to the "normal type."[130] Doctors, then unfamiliar with hormones, did not consider the possibility that it might be "normal" for some women to have facial hair and were anxious to help women "cure" their hypertrichosis. The message was clear: normal men had beards, normal women did not.

Besides popularizing the new field of dermatology, women also flocked to electrolysis, invented in 1869, and purchased a wide variety of depilatories, desperate for relief from hypertrichosis. Advertisements for countless body creams, electrical

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[128] Henrietta P. Johnson, "Facial Blemishes," in *An International System of Electro-Therapeutics With Illustrations Furnished by Geo. H. Fox, M.D.*, ed. Horatio R. Bigelow (London: F.J. Rebman, 1895), H-1 – H-8; quoted in Riordan, *Inventing Beauty*, 121-122, n. 12.

[129] J.N.H., Review 3 – no title, *The American Journal of the Medical Sciences* 111 (March 1896): 328. The textbook in question was Arthur Van Harlingen, *Handbook of the Diagnosis and Treatment of Skin Diseases*, 3d ed. (Philadelphia: P. Blackiston and Son, 1895). The image reprinted here was Figure 41 on page 357 of the book.

[130] Herzig, "The Woman Beneath the Hair," 57-58.

treatments, and chemical solutions can be found in any late nineteenth-century woman's magazine (figures 11 and 12).[131] In her well-known advice book, Harriet Hubbard Ayer noted that "of all the punishments meted out to our sex, the one that is the ugliest to bear – superfluous hair—is the one that practically defies science, and for which up to this writing there is no certain cure, electrolysis excepted."[132] Electrolysis, however, was successful only in 10% of cases, according to Ayer, and it was very expensive, whereas "fate has dealt moustaches to the rich and poor with equal lavishness." Other treatment options included using a hypodermic needle to inject carbolic acid into the hair follicle or "punching," which entailed extracting the entire hair follicle and surrounding tissue with a small knife.[133] Such treatments were rarely effective and almost always painful and disfiguring, yet many women gladly endured them. Anything was better than too much facial hair. Women raced to eliminate unsightly hair and increase deficient busts because sexual selection demanded that they conform to evolutionary standards of femininity, not only for their own benefit but also for the sake of their offspring.

While feminists had much to say in response to Darwin's statements about the evolution of female inferiority, they were largely silent on the issue of female beauty. Darwin's main female critic, Antoinette Brown Blackwell, wrote only this on the topic:

> Neither can one doubt that the love of the beautiful has been always developing with other sentient faculties in all races of beings, or that animals are attracted by agreeable colors and other ornaments; but that sexual selection of the most

[131] Figures 11 and 12 are from *Ladies Home Journal*, 1891. These ads appeared in nearly every issue in that volume.

[132] Harriet Hubbard Ayer, *Harriet Hubbard Ayer's Book: A Complete and Authentic Treatise on the Laws of Health and Beauty* (Springfield: The King Richardson Company, 1902, reprint, Women in America: From Colonial Times to the 20th Century series, ed. Leon Stein, Annette K. Baxter, New York: Arno Press, 1974), 107-108 (page citations are to the reprint edition).

[133] Riordan, *Inventing Beauty*, 122-123.

> beautiful has played the conspicuous part in evolution which Mr. Darwin assigns to it, is at least questionable.

In congruence with her theory that the universe was striving towards balance and equilibrium, Blackwell believed that bright colors evolved as a result of the interplay between heat and light and the balancing of "attractions and repulsions." She hypothesized that even if animals lacked aesthetic senses, color would have evolved anyway because "one atom of colored matter must have tended always to attract another." In contrast to the prevailing evolutionary view that opposites attracted, Blackwell believed it was more probable that "like everywhere attracts its like" and, furthermore, that men and women were becoming more alike, not more distinct.[134]

Blackwell was more concerned with establishing her theory of gender equivalence and equilibrium than with critiquing the importance ascribed to female beauty, but pioneering social scientist W.I. Thomas, among a handful of others, did challenge the evolutionary emphasis on female appearance.[135] After explaining to readers that "[b]right spots and a flashy exterior seem trivial possessions, but they are a part of the outfit for charming the opposite sex," Thomas reminded them that "[m]an is naturally one of the most unadorned of animals, without brilliant appearance or natural glitter, with no plumage, no spots or stripes, no naturally sweet voice, no attractive odor, and no graceful antics." Unlike males and females in other species, men and women looked, more or less, the same. Even though it might have been tempting, he argued, it was wrong for

[134] Blackwell, *The Sexes Throughout Nature*, 102-103.

[135] Thorstein Veblen made a similar critique in *The Theory of the Leisure Class*, though he relied on an economic as opposed to biological model of evolution. Veblen, *The Theory of the Leisure Class* (1899), reprinted with an introduction by Robert Lekachman (New York: Penguin Books, 1967).

women, those most impacted by sexual selection among humans, to focus so much energy on their outward appearance and clothes. Doing so, he extorted, turned women into "things," not people. Instead of turning their attentions to the latest fashion, Thomas urged women to accept their natural similarity with men and become "agent[s] for transforming the world."[136] Sociologist Lester Frank Ward similarly posited that, the eons of men selecting women based on their beauty had resulted in the loss of "the greater part of all those sterling qualities that primarily characterize the female sex as the original trunk of all organic existence and the source and prop of life itself."[137]

Eliza Burt Gamble, another feminist critic of Darwin, agreed that the evolutionary cost of male selection for female beauty had been too high, especially when it came to the restrictive and painful clothes women wore in the name of fashion. She argued that the style of "dress adopted by women is not an expression of their natural ideas of taste and harmony" but evidence of "male taste" because women had to dress according to male standards in order to be selected. While Gamble accepted Darwin's hypothesis that among humans men chose women, she attacked male standards and looked forward to the day when women could "adopt a style of dress of which admits of the free and unrestricted use of the body and limbs."[138] Neither Gamble, Thomas, nor Ward challenged Darwin's main claims about the power of sexual selection or male choice among humans, but all lamented the degraded state in which such a system had left women, as creatures concerned only with fashion and forced to wear clothes that

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[136] W.I. Thomas, "The Psychology of Women's Dress," *The American Magazine* (November 1908): 66. "Miscellaneous subjects" file, SSC.

[137] Lester Frank Ward, "The Past and Future of the Sexes," *Independent*, 8 March 1906, 544-545.

[138] Eliza Burt Gamble, *The Sexes in Science and History*, 80-85.

hindered their further growth and development. Thus, even though they agreed that Darwinian sexual selection accurately described the modern state of affairs, they sought to improve upon women's status in the future by returning women to a more "natural" state of dress and appearance, an argument that could be supported by a reformist reading of *The Descent of Man*.

Should Women Select their Mates? Alternative Interpretations of Sexual Selection

Darwin's theory of sexual selection not only facilitated the scientific study of sex and elevated the importance of female beauty, it also presented the possibility that human beings could help shape the evolutionary process through their reproductive decisions. In contrast to natural selection, which posited a cold, random universe where the fittest survived but no one knew for sure the standards of fitness, sexual selection suggested that human mate choice significantly shaped development. Since sexual selection consistently prioritized female beauty, Professor Woods Hutchinson observed in 1896 that it offered a new way of thinking about the future:

> 'Beauty only skin-deep' indeed! It has entered into the very blood, bone, and marrow of the race for countless generation. With its advent hand-in-hand with love, the stern law of the 'survival of the fittest' loses half its terrors, for a new world is opened up for selection. It has swayed and softened not only the hearts of men, but the great elemental forces and relentless laws of nature herself. And has it lost any of its primeval power to day? Not a whit. It sweeps everything before it as almost no other influence can. Even in this mercenary age the value of beauty as a dower is second to none.[139]

[139] Hutchinson, "The Strength of Beauty," 462-464.

The power of female beauty was just one of the predictable laws of sexual selection that encouraged humans to demystify reproduction and place it firmly in the realm of science where it could be studied and understood.

Scientists and writers were divided, however, on the issue of conscious human control in marriage. Some, most notably Francis Galton, advocated that generally agreed upon standards of evolutionary "fitness" should determine marriage choices;[140] others, including Darwin, believed that nature worked fine on its own and that any conscious human intervention in reproductive issues would subvert the unconscious process of sexual selection. Sir George Campbell and Grant Allen debated the question of conscious intervention in marriage decisions in the pages of *Nature* in 1889. Sir Campbell believed humans should apply their vast "physiological knowledge" to make "fitting marriages," a process he called "man-breeding," rather than "giving way to foolish ideas about love and the tastes of young people, whom we can hardly trust to choose their own bonnets, much less choose in a graver matter in which they are most likely to be influenced by frivolous prejudices." Allen countered that love itself was a highly evolved, scientific response, an assertion with which he claimed modern biologists and evolutionists agreed. "Clumsy" human intervention would only disturb nature's processes:

> Falling in Love, as modern biology teaches us to believe, is nothing more than the latest, highest, and most involved exemplification, in the human race of that

[140] Eugenics will be discussed in chapter 4; here, I am primarily concerned about the debates over whether or not instinct and sexual attraction provided the best barometers for mate selection.

> almost universal selective process which Mr. Darwin has enabled us to recognize throughout the whole long series of the animal kingdom.[141]

According to Allen, falling in love was a scientific reaction, but the exact mechanisms of this highly evolved process remained mysterious and better left to instinct.

In *Chapters on Human Love* (1900), Geoffrey Mortimer echoed Allen's thesis. Mortimer objected to the countless books that had recently been written offering would-be lovers advice on how to "charm the opposite sex." Such advice was useless, he argued, because it was impossible to know for sure why people were attracted to one another:

> It seems to be entirely futile to trust that any artificial "law" of sexual selection will ensure a fortunate choice. Natural instinct, the inscrutable impulsion of a man to a woman, decides the matter in a thrice, and decides it, in most cases, with more unerring certainty than any intricate scheme of premeditated election.

Of course, most love usually began with the "curve of a bosom," but, beyond that, sexual selection proceeded in largely unconscious ways.[142]

Physical culture expert and sex enthusiast Bernarr Macfadden also encouraged readers to follow their own sexual instincts. Doing so would never lead them astray, he promised, even if it did make them unhappy. Citing the "iron law of 'survival of the fittest'" as proof, MacFadden counseled, "[i]nstinct may not always make for the greatest good to the individual perhaps, but it does insure the greatest good to the human race in general. Nature is not striving to make you alone happy. She is doing that which will result in the largest sum of ultimate happiness for humanity."[143] Lest that seem a

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[141] Grant Allen, *Falling in Love,* 2-3. "Falling in Love" first appeared as an essay in *Fortnightly Review* and excerpts were also reprinted in the *New York Times*, 16 February 1890, 18. Allen quoted Sir Campbell in his response.

[142] Mortimer, *Chapters on Human Love,* 86, 90.

[143] MacFadden, *Health—Beauty,* 42.

daunting proposition, MacFadden promised readers that they had it within their power to become one of the "fittest," presumably by following his prescriptions for manly strength, frequent intercourse, and womanly beauty. Another author assured readers that, even if individual lovers were unhappy with their union, a marriage was successful as long as it produced children. This article claimed that no marriage based on physical attraction could "prove 'unhappy' from a biological point of view, because the offspring tend to be the best specimens of the race. The biological test of a marriage is afforded in the offspring." As further proof that good marriages provided children, not happiness, the author reminded readers that humor evolved "long after romantic love, because its function was to make life tolerable."[144]

Rather than deferring to outside or expert intervention, as Galton suggested, those concerned about the health of future generations should merely let nature take its course. "Love in the Light of the New Biology," for example, argued "the injection of artificial factors into the sexual conjugation is menacing to the species" and suggested instead that lovers select mates based on who they found most "charming" or "fascinating." Physical attraction served as a far more trustworthy guide than reason when it came to courtship. As the author explained, a woman who "unites" with a man based on biological urges "yields to an impulse that is far more truly scientific than the merely educated insight of those who criticize her from the lower standpoint of mere intelligence."[145] Even if the workings of such pairings appeared inscrutable to the human eye, another article argued "sexual selection, even when left to random influences; is still not left to chance. It

[144] "Love in the Light of the New Biology," 561.
[145] Ibid., 564

follows definite and ascertainable laws."[146] If people were allowed to pick their mates based solely on physical attraction, this author argued, fertile matches would result and evolution would be well served.

For those open to new, evolutionary ideas about sex, marriage reform was an essential part of the program.[147] Marriage, reformers agued, should obey the laws of nature, not the laws of church or state.[148] Since nature evidenced a wide variety of sexual unions and practices, including but not limited to monogamy, human sexuality needed to reflect its animalistic roots and many natural permutations. Such ideas would, no doubt, have surprised the happily monogamous Darwin -- he did after all anthropomorphize animal courtship and celebrate monogamous animals -- but they were, nevertheless, logical applications of his theory of sexual selection.

Drawing on the work of Thomas Malthus and Darwin, Rose Marie Resler proposed a trial expiration date to marriages, after which point a couple could decide to stay together or separate.[149] An unhappy union would not benefit offspring, Resler reasoned, and should be terminated. Avid Darwinist Grant Allen explored a similar alternative to traditional marriage in his bestselling novel *The Woman Who Did* (1895),

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[146] "The Future of Love-Making in the Light of Science," *Current Literature*, XLI (July 1906): 97.

[147] For an article about nineteenth-century critiques of courtship, see Sondra R. Herman, "Loving Courtship or the Marriage Market? The Ideal and Its Critics, 1871-1911," *American Quarterly* 25 (May 1973): 235-252. Herman contrasts conservative marriage advice books with the writings of Lester Frank Ward, Edward Bellamy, Charlotte Perkins Gilman, Thorstein Veblen, and Theodore Dreiser. In her dissertation "Feminist Eugenics," Susan Rensing argues that a key distinction between antebellum and post-bellum free love ideology was that post-bellum thought incorporated eugenics, see page 10 and chapter 2. Susan Rensing, "Feminist Eugenics: From Free Love to Birth Control, 1880-1930," (Ph.D. diss. University of Minnesota, 2006).

[148] Darwin's son George included marriage and divorce reform as part of his proto-eugenics program, see George Darwin, "On Beneficial Restrictions to Liberty of Marriage," *The Eclectic Magazine* 18 (October 1873): 492-500.

[149] Rose Marie Resler, *How to Enjoy Matrimony; or, the Monogamic Marriage* (New York: Abbey Press, 1900).

which chronicled one woman's efforts to normalize single motherhood. Similarly applying evolutionary ideas to marriage, Dr. R. Greer urged the Society of the Students of Nature to reform marriage laws. According to Greer, people should learn about "natural science and [be] made to follow the example of Nature in an important matter," not the "present marriage laws which conflicted with 'the laws of nature.'"[150] Nature, to Greer and other reformers, implied more female autonomy in reproductive decisions, as well as the easing of divorce laws and tolerance for sexual freedom outside the bonds of matrimony. He urged humans to emulate marriage among the "lower grades of animals," the only example of "anything like true, pure, healthful, lawful and happy marriages."[151] Free thinking Lillian Harman, the wife of Moses Harman who edited *Lucifer the Light-bear*er, also demanded divorce reform on behalf of evolution: "[the] state has barred the way of evolution, has rendered natural selection of the best human characteristics impossible, by holding together the mismated."[152] Richard D. Kathrens, too, advocated amending marriage laws to accord with nature. According to him, humans took themselves "too seriously" and needed to recognize marriage for the natural impulses it solidified. "Reciprocal love," he argued, was the true definition of marriage. As such, divorce should be made more accessible, especially for women, people should be educated about sex, and women should control reproduction. Citing the Adam and Eve

[150] Dr. R. Greer, "The Sanctity of Marriage, or Marriage as it is . . . and Marriage as it ought to be," a lecture delivered before the Society of the Students of Nature, 2 February 1896, Chicago, IL, 17. HOW.

[151] Ibid., 13.

[152] Lillian Harman, *Regeneration of Society* (speech before the Manhattan Liberal Club, 31 March 1898) (pamphlet; Chicago: Light Bearer Library 1900); quoted in Linda Gordon, *The Moral Property of Women: A History of Birth Control Politics in America* (Chicago: University of Illinois Press, 2002), 76, n. 14.

story as prime evidence, Kathrens blamed the church, "a distinctly man-made institution, man -- managed, for *men,*" for unnatural marriage laws and the subjugation of women. He trusted that "[s]cience will civilize the marriage laws!"[153]

A central component of calls for marriage reform was the restoration of female mate choice in humans, which Darwin speculated men had wrested from women during the "more savage years" of history. In many cases, female choice offered the possibility of a feminist interpretation of sexual selection. Darwin's description of the loss of female choice in humans inspired many to argue for its return. This also seemed more "natural" since females selected in nearly all other species.

Advocates suggested that restoring female choice would solve many social ills, including prostitution, unhappy marriages, male licentiousness, and poverty.[154] In his lecture to the Society of the Students of Nature, Dr. R. Greer proclaimed that women should be educated, self-supporting, and allowed to choose whatever career and husband they so desired. Male selection had caused "morbid amorous propensity," which could only be rectified by reinstating female mate choice in humans including even the right of women to propose marriage.[155] Modern marriage based on the subjection of women to men was bad for women and for the entire race, Greer argued, because it reduced the possibility that women would bear healthy offspring. As another marriage reformer suggested, in light of the fact that the "monkey and the monarch are the same thing. . .

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[153] Richard D. Kathrens, *Let's Civilize the Marriage Laws* (Kansas City: Burton Publishing Company, 1918), 49, 161, 164.

[154] Gordon also argues that many "social purity reformers" embraced female choice because they believed male choice had led to "hereditary decline" (*Moral Property* 80).

[155] Greer, 6.

science must make Woman Mistress of Herself"[156] In the novel *Courtship Under Contract: the Science of Selection, A Tale of Woman's Emancipation*, James Henry Lovell Eager presented the story of a young woman dedicated to the "science of selection." Instead of agreeing to marry her suitor, she proposed that they live together chastely for six months, equally dividing all expenses. The protagonist convinced her family and friends of this novel idea and, in the end, decided against marrying the man with whom she had lived.[157] She was depicted as a model new woman, as well as a faithful practitioner of scientific mandates.

In a stunning reversal, Alfred Russel Wallace, the foremost critic of sexual selection, also advocated a return to female selection, a concept he had spent years trying to discredit. What prompted Wallace's sudden embrace of female choice was reading Edward Bellamy's *Looking Backward* (1888).[158] Key to the socialist utopia Bellamy created in this novel was women's free, untrammeled power of sexual selection. Because women were equal participants in all realms of Bellamy's ideal society, they could freely chose partners based on attraction, not economic necessity. Such a system appealed to Wallace's political sympathies and buttressed his vision for the future. After applauding the recent advances made by women, Wallace suggested that the driving factor in any

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[156] Kathrens, *Let's Civilize the Marriage Laws*, 164. Such ideas appear to have been widespread. In October 1899, the *Club Woman*, the organ of the General Federation of Women's Clubs, favorably reviewed Florence Huntley's *Harmonics of Evolution* because "In the two chapters on 'Selection' the author rescues woman from the scientific and theological interpretations of such writers as Darwin and Drummond." The review also described the principles upon which Huntley suggested selecting partners and recommended that "Women—especially the mothers of young, marriageable women, should read this book" (16).

[157] James Henry Lovell Eager, *Courtship Under Contract: the Science of Selection, A Tale of Woman's Emancipation* (New York: The Health-Culture Company, 1910).

[158] Edward Bellamy, *Looking Backward 2000-1887* (1888), edited and with an introduction by Cecelia Tuchi (New York: Penguin Classics, 1982).

future societal reformation would be female choice in marriage partner: "I hope I make it clear that women must be free to marry or not to marry before there can be true natural selection in the most important relationship of life." "In order to cleanse society of the unfit [and allow natural selection to proceed]," he explained, "we must give to woman the power of selection in marriage, and the means by which this most important and desirable end can be attained will be brought about by giving her such training and education as shall render her economically independent."[159] Wallace's argument hinged on his acceptance of eugenic ideas, but also key to his vision was the restoration of female choice to improve social conditions as well as future offspring.

Bellamy was one of many socialists to incorporate or be inspired by Darwinian sexual selection. Several prominent others, including Victoria Woodhull, Charlotte Perkins Gilman, and George Bernard Shaw, singled out unrestricted female choice as an antidote to class bias.[160] If women could chose mates based on their natural preferences, not on their financial need, then surely women would select only the strongest and most fit men (many were concerned that the most fit were not necessarily the most successful or wealthy), improve the lot of the race, and hasten a classless society. Leading socialist and pioneer in the struggle for homosexual rights, Edward Carpenter also famously championed the restoration of female choice in *Love's Coming of Age* (1896) and many of his other writings. After calling attention to the power of female choice in improving

[159] Alfred Russel Wallace, "Women and Natural Selection," *Lucifer the Light-bearer*, 15 September and 4 October 1894. For further discussion of Wallace's change of mind, see Diane B. Paul, *Controlling Human Heredity, 1865 to the Present* (Atlantic Highlands, NJ: Humanities Press, 1995), 37-39.

[160] Diane Paul names these socialists as those most influenced by sexual selection in *Controlling Human Heredity*, 38.

and elevating animals, Carpenter lamented that with the "advent of property-love" women "became chattel" and their selective power diminished. "With the return of woman to freedom the ideal of the female may again resume its sway," Carpenter posited. "It is possible indeed that the more dignified and serious attitude of women towards sex may give to sexual selection when exercised by them a nobler influence than when exercised by the males."[161] Evolutionary socialists linked the future of the race with the emancipation of women and the return of more "natural" heterosexual relations.

Charlotte Perkins Gilman published a fable entitled "Improving on Nature" to highlight the evolutionary importance of female choice. In this tale, a man awakened Mother Nature to alert her that women were trying to be men. Incredulous, Mother Nature asked to hear from women themselves. She was stunned when in walked "a plump, pink little person; hobbled, stilted, and profusely decorated." Mother Nature asked the woman why she was so little, so meek, and so weak. Each time, the woman answered, "[h]e likes us that way." "'I never heard such talk!" exclaimed Mother Nature. "What business has he to do the choosing? That is your place, my dear, and has been since you was a cirriped." When man protested, Mother Nature showed him examples of females throughout the animal and insect kingdom to demonstrate the error of his ways. In the end, Mother Nature advised women to:

> Develop your brains and muscles; earn your own livings; be bought by no man; and choose the kind with which you wish to replenish the earth. He has created the kind of woman he liked—and a pretty poor job he's made of it. Now do you

[161] Edward Carpenter, *Woman and her Place in a Free Society* (Manchester: Labour Press Society, 1894), 35-36. He makes the same statement in, Edward Carpenter, *Love's Coming of Age*, a series of papers on the relations of the sexes, revised edition (first published in 1896) (New York: Mitchell Kennerley, 1911), 71.

> resume your natural function of choosing – and make the kind of man you like – that is your especial duty to the race.

Man again protested, and Mother Nature exhorted him to "[g]o study your biology!"[162] Not only was female selection better for society, it accorded with evolutionary doctrine. Thus, even though Darwinian evolution often inspired conservative assessments of gender, such as those advanced by the physicians discussed in chapter two, it also laid the groundwork for revolutionary arguments in favor of increased female autonomy in reproductive decisions.

Conclusions

The publication of *The Descent of Man* (1871) put Darwin's theory of sexual selection at the center of scientific and popular discussions of both evolution and sex. The widespread proliferation of sexual selection permanently altered Americans' ideas about courtship, marriage, and reproduction by defining all three in relation to animal mating, evolutionary progress, and physical appearance. Overall, Darwin's discussion of reproduction and courtship in *The Descent of Man* cemented human kinship with animals, significantly shaping the rhetoric of prescriptive literature as well as the scope of scientific research. Furthermore, it made sex scientific, something to study and perhaps even control. In the twentieth century, as has been well-documented, sexual selection theory contributed to the development of state-sponsored eugenics.

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[162] Charlotte Perkins Gilman, "Improving on Nature," *The Forerunner* 3 (July 1912): 174-176. Gilman also discussed the importance of female choice in *Women and Economics*, 92. Charlotte Perkins Gilman, *Women and Economics: A Study of the Economic Relation Between Men and Women as a Factor in Social Evolution* (Boston: Small, Maynard, and Company, 1898; reprint, edited and with an introduction by Carl Degler New York: Harper Torchbook, 1966). For other examples of articles about the revolutionary potential of female choice, see also "The 'One Question in the World,'" *The Woman's Tribune*, 26 November 1892, 234; Florence Guerin Tuttle, *The Awakening of Woman: The Psychic Side of Feminism* (New York: The Abingdon Press, 1915); Eliza Burt Gamble, *The Sexes in Science and History*, footnote on 25-26.

In the final decades of the nineteenth century, however, the application of Darwinian sexual selection to human courtship was both more subtle and more pervasive. On one hand, sexual selection essentialized women according to their physical appearance and reproductive function, but, on the other hand, it led many scientists and laypeople to argue for greater female autonomy in mate choice and reproduction, ideas which also laid the groundwork for new thinking about motherhood.

Chapter Four: Evolution, Not Revolution: Women Apply Darwinian Ideas to Motherhood

> "A few years ago physicians, surgeons, genealogists, biologists, reformers and other scientific men began to discuss sex as they discussed all other race questions, in the light of reason and fact. To go on pretending and ignoring was unscientific, and Science is the only standard to which these men bowed. But because they persisted, because in the name of the new humanity they exhorted, agitated and even dramatized sex and its problems, the taboo on sex is passing, the ancient curse has fallen away from woman, never, we hope, to return."[1]
>
> Florence Guerin Tuttle, 1915

In 1873, when Augusta Cooper Bristol addressed the first annual Woman's Congress sponsored by the Association for the Advancement of Women, she chose as her topic "Enlightened Motherhood." She began her address to this group of professional and educated women by explaining the centrality of science to her message:

> We are not convened for the purpose of contemplating a raid upon the Unknowable. On the contrary, we have spontaneously arranged ourselves within the limits of positive knowledge, and have chosen no weaker a basis than the impregnable platform of Science. In other words, we mean business.

She went on to say that while it had been man's prerogative to put "his love and science" into the soil, "it is especially Woman's prerogative to put her love and science into blood, and nerve, and brain -- into the wonderful complexity of human minds and bodies. . . We perceive, therefore, that our theme is in the order of Nature, and our work is not in the direction of revolution, but evolution."[2]

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[1] Florence Guerin Tuttle, *The Awakening of Woman* ,127-128.

[2] Augusta Cooper Bristol, "Enlightened Motherhood," *Papers and Letters Presented at the First Woman's Congress of the Association for the Advancement of Woman* (1873) (New York: Mrs. William Ballard, 1874), 11. Miscellaneous Organizations, box 10, folder 2, SSC.

Augusta Cooper Bristol's description of the evolutionary importance of motherhood crystallized the influence that this new branch of science wielded over ideas about reproduction, including motherhood, at the end of the nineteenth century. By challenging the pervasive Adam and Eve myth, evolution also called into question the existence of "Eve's Curse." Because she ate the fruit of the tree of knowledge, God punished Eve and her female descendents to agony in childbirth. But if there was no Garden of Eden, did women still have to suffer Eve's curse? Furthermore, biblical understandings of motherhood emphasized its spiritual duties and responsibility to create souls worthy of salvation. Accordingly, earlier definitions of motherhood, such as the well-known concept of "Republican Motherhood" and those constructed by the sentimental novelists of the mid-nineteenth century, focused on virtue, piety, and sacrifice.[3] But, after 1870, evolutionary science increasingly infiltrated discussions of motherhood, redefining it as a physical and "racial" (a term that sometimes meant the "human race" and sometimes meant the "white race") responsibility and forcing a generation of Americans to reconsider their ideas about pregnancy and parental care.

In terms of motherhood, Darwin's theories, especially those advanced in *The Descent of Man, and Selection in Relation to Sex* (1871) inspired myriad and often contradictory reactions. Feminists and conservatives alike fastened Darwinian principles and terms to their programs for motherhood reform. As discussed in chapter two, the

[3] For a discussion of Republican Motherhood, see Linda Kerber, *Women of the Republic: Intellect and Ideology in Revolutionary America* (Chapel Hill: Published for the Institute of Early American History and Culture by the University of North Carolina Press, 1980). For an analysis of sentimental novelists, see Jane P. Tompkins, *Sensational Designs: The Cultural Work of American Fiction, 1790*-1860 (New York: Oxford University, 1985).

widespread acceptance of evolutionary biology encouraged many doctors and scientists to cite women's maternity as the prima facie evidence of their inferiority. Not only did maternity require an excess of energy that bankrupted other physical and mental functions, but the periodic menstruations necessary to sustain it left women in a semi-invalid state for most of their reproductive lives.[4] Herbert Spencer, Edward Clarke, and Henry Maudsley, among others, popularized and provided scientific credibility for the idea that women's education and professional advancement were at odds with maternity and the survival of the "race."

At the turn of the twentieth century, political leaders, together with natural and social scientists, amplified these fears about women's imperiled maternity by warning of "race suicide." Coined by sociologist Edward Ross in 1901, "race suicide" had been a popular idea for decades before it earned a name. The term described white Americans' anxieties about falling birthrates and the loss of virile manhood as a result of, among other things, the influx of immigrant and non-white "others." Women, Ross claimed, either wasted vital maternal resources on personal endeavors or lost interest in maternity as they pursued education and careers, threatening white ascendancy. Writing in *Popular Science Monthly* in 1889, Grant Allen charged that women's education and work outside the home had distracted them from their most important duty: procreation. According to

[4] Such views were discussed in chapter 2 and have been expertly documented by Cynthia Eagle Russett, Charles Rosenberg and Carroll Smith-Rosenberg, and others. See, Russett, *Sexual Science: The Victorian Construction of Womanhood* (Cambridge: Harvard University Press, 1989); Carroll Smith-Rosenberg and Charles Rosenberg, "The Female Animal: Medical and Biological Views of Women and Her Role in Nineteenth-Century America," *The Journal of American History* 60 (September 1973): 332-356; Janice Law Trecker, "Sex, Science and Education," *American Quarterly* 26 (October 1974): 352-366; Susan Sleeth Mosedale, "Science Corrupted: Victorian Biologists Consider 'The Woman Question,'" *Journal of the History of Biology* 11 (Spring 1978): 1-55.

"Darwinian principles," Allen claimed that communities must increase in order to maintain "national health and vigor." To stem the threat of racial decay, Allen recommended that all women marry and have at least four children lest "the race will cease to exist." He clarified that he supported women's rights, but that woman's emancipation "must not be of a sort that interferes in any way with this prime natural necessity."[5] To Allen, women were mothers first, humans second, a view that fit in well with mainstream interpretations of evolutionary discourse.

The American public became familiar with the term "race suicide" in 1903 when President Theodore Roosevelt, the avatar of civilized masculinity, began making it a centerpiece of his speeches and public statements. According to historian Gail Bederman, as soon as Roosevelt mentioned the term it caught the nation's attention. Not only did popular magazines cover the topic exhaustively, but Americans bombarded with the White House with letters and photos establishing their own families' virility, as evidenced by many children. Many correspondents proclaimed "no race suicide here."[6] Roosevelt's popularization of the term fused evolutionary progress with white racial superiority and white women's devotion to maternity in the public imagination.[7]

Many women shared this conservative evolutionary take on motherhood and encouraged others to heed Roosevelt's call and devote themselves to bearing and raising large broods. This rhetoric matched that of the many women's clubs founded on female

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[5] Grant Allen, "Plain Words on the Woman Question," PSM 36 (December 1889): 170-181.

[6] Gail Bederman, *Manliness and Civilization*, 200-206.

[7] "Race suicide" and other conservative interpretations of motherhood that drew on evolutionary discourse have been well documented by Bederman and others and are not the focus of this chapter. See also Louise Michele Newman, *White Women's Rights: The Racial Origins of Feminism in the United States*.

difference and exceptionalism, including the Woman's Christian Temperance Union, which argued that mothers should extend the reach of their nurturing benevolence into their towns and cities. It also helped bolster demands that home economics become a recognized academic discipline. Many turn-of-the-century women joined with Edward Clarke in arguing that female higher education should be tailored to prepare women for motherhood and community service. Rather than seek new pursuits, these women instead encouraged their peers to embrace their maternal destinies armed with ample tools and specialized educations. Such demands often included evolutionary language about the importance of reproduction and encouraged women to take their maternity seriously, for the sake of their own offspring and the progress of the race in general.

Founded in 1897, the National Congress of Mothers (NCM), which became the Parent Teacher Association in 1924, best exemplified women's interest in this conservative version of evolutionary motherhood. Founded by two elite clubwomen, Alice McLellan Birney and Phoebe Apperson Hearst (mother of William Randolph Hearst), the NCM modeled itself on the General Federation of Women's Clubs but focused on educated motherhood, not issues of concern to professional women. According to Christine Woyshner's study of the group's founding, the NCM had three priorities: parent education, child welfare, and home-school relations.[8] The group was "guided by maternalist ideology that maintained that women were united across race, class, and religion in the effort to care for all children because of their shared capacity for

[8] Christine Woyshner, "Race, Gender, and the Early PTA: Civic Engagement and Public Education, 1897-1924," *Teachers College Record* 105 (April 2003): 520-544. See also chapter one in Ann Hulbert, *Raising America: Experts, Parents, and a Century of Advice About Children* (New York: Alfred A. Knopf, 2003).

motherhood."[9] The NCM's focus and federated organizational strategy matched the Progressive ideology of the time period and mirrored that of many other women's clubs. Their emphasis on maternity also aligned them with men like Roosevelt and Allen who warned against "race suicide." The NCM did not support suffrage and blamed the higher education of women for encouraging women to abandon their traditional domestic pursuits and leaving them unprepared for the realities of maternal life.[10] However, as this chapter will reveal, the NCM's vision was just one way in which women applied Darwinian evolution to motherhood.

Feminist women, including Antoinette Brown Blackwell, Eliza Burt Gamble, and Charlotte Perkins Gilman, also relied on Darwinian evolution in their demands that motherhood be reformed, not institutionalized through law and educational practice. In many respects, progressive and traditional applications of evolution to motherhood coincided. For example, they both wanted to return to a more "natural" state of motherhood, shared a growing interest in heredity, and advocated greater female control of reproductive decisions. Where they disagreed, however, was whether or not domestic responsibilities needed to be reorganized and the extent to which women should be defined by maternity. This chapter analyzes these divergent applications of Darwin and traces the influence of evolutionary discourse on turn-of-the-century ideas about motherhood. I have divided these responses into four categories: 1) demands for fit pregnancy; 2) arguments that evolution established female superiority; 3) political calls for redefining and redistributing domestic labor in light of the unique factor of women's

[9] Ibid., 526.
[10] Ibid., 527.

maternity; and 4) women's growing interest in heredity, which heralded increasing female autonomy in reproduction.

Fit Pregnancy

For most of the nineteenth century, medical and popular opinion coincided in the belief that pregnancy was, more or less, a disease to be endured. In a chapter on pregnancy, entitled "The pains attendant on pregnancy perhaps necessary," from an 1808 guidebook for women, Samuel K. Jennings advised newly married women:

> Although the symptoms attendant on a state of pregnancy vary in different women, and although the same woman is seldom affected the same way with her different children, yet in almost every instance the case will be troublesome and distressing. But as the God of nature does nothing in vain, these distresses seem to be directed to an intended valuable end.[11]

While individual pregnancies differed, all women could expect suffering and pain. God had decreed "troublesome" and "distressing" pregnancy for a reason, and it was not women's business to attempt to figure out why. The best women could do was endure the pain and hope it bolstered their spiritual strength. Concomitant with the belief that pregnancy had to be debilitating, then, was Jennings' definition of motherhood as primarily a spiritual and moral enterprise, charged with forming the "virtuous affections of the mind."[12] In his treatise, Jennings stressed the moral and religious lessons mothers should impart to their children, but he did not mention a mother's influence on the physical make-up or heredity of her offspring. A Darwinian worldview, however,

[11] Samuel K. Jennings, *The Married Lady's Companion, or Poor Man's Friend*, 2d ed. (New York: J.C. Totten, 1808, reprint, Medicine and Society in America Series, ed. Charles Rosenberg, New York: The Arno Press, 1972), 76-77 (page citations are to the reprint edition).

[12] Ibid., 8.

suggested that pregnancy might be better understood in terms of human's animal ancestry and heredity influences, not spiritual sacrifice and divine decree, making it harder to sustain the theological justifications for maternal suffering and ignorance. If, in fact, pregnancy was a natural function responsible for the evolution of our species, why, then, should it be marked by misery and considered a disease?

Darwin's emphasis on the evolutionary importance of maternity, along with his description of the animalistic roots of human coitus, challenged the longstanding belief that pregnancy was, by divine design, painful and debilitating and inspired demands for fit, healthy pregnancy. Many women were keen to this new evolutionary definition of maternity, which, together with Darwin's explanation for creation, invalidated the creation story in Genesis and lifted Eve's curse. Writing in the *Revolution*, the newspaper she founded in 1868, Elizabeth Cady Stanton declared that the first step in strengthening young girls was teaching them that pregnancy was not a disability. She suggested that reformers:

> make all women understand that suffering is not in harmony with God's will. . . .We have been taught that woman is the special object of God's wrath and curse; that the fact of motherhood, so far from being her highest glory and exultation, is her deepest sorrow and humiliation . . . . out of this ignorance of the science of life come all these absurd theories of the natural weaknesses and disabilities of woman.[13]

Stanton realized, as did many other women tacitly or otherwise, that the legacy of Eve, especially the curse on maternity, buttressed the whole ideology of female inferiority. In contrast to biblical explanations of pregnancy, the "science of life" offered Stanton and

[13] E. [Elizabeth] C. [Cady] S.[Stanton], "Our Young Girls," *The Revolution*, 29 January 1868, 57.

other progressive women a new lens through which to view maternity and their status as mothers.

Indeed, evolutionary theory emboldened many forward-thinking women to denounce literal interpretations of the Bible and, instead, apply the laws of natural science to reproduction. Writing in the radical *Woman's Tribune* in 1887, E.T. Grover repudiated the idea that painful maternity was God's curse upon women for Eve's transgression. Grover declared, "there is a better Eden even in this life, for those who can plant their feet upon the perfect law of life. . .Then, according to the law of the survival of the fittest, if of no other, we may venture to hope in a better race, and a happier world."[14] Jettisoning the biblical Eden for a Darwinian one, Grover argued that the laws of evolution demanded that mothers be fit and healthy. Or, as Stanton declared:

> With obedience to the law of health, diet, dress, and exercise, the period of maternity should be one of added vigor in both body and mind, a perfectly natural operation should not be attended with suffering. By the observance of physical and psychical laws the supposed curse can be easily transformed into a blessing.[15]

For those hoping to change gender relations, the survival of the fittest supplanted the biblical injunction against Eve as the organizing principle of motherhood and inspired women to demand that mothers be fit.

Many advice books written after 1870 joined feminists in encouraging healthy pregnancy.[16] In *The Woman Beautiful* (1901), Drs. Monfort Allen and Amelia McGregor

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[14] E.T. Grover, "Woman and the Curse," *Woman's Tribune,* January 1887.

[15] Elizabeth Cady Stanton, "The Woman's Bible, chapter III," *Woman's Tribune,* 6 April 1895.

[16] In the second half of the nineteenth century, women increasingly turned to experts, generally male physicians, for advice about pregnancy and child-rearing. Previously considered something women intuitively knew, motherhood became something for which women needed education and training. For a broader discussion of expert intervention in motherhood, see Rima D. Apple, *Perfect Motherhood: Science*

noted how the shift from biblical to biological thinking about gender had impacted their ideas on reproduction: "when has the religious world been so distracted by dissensions and differences of opinion? Were there ever as many changes and innovations in theology as at the present time? When did science unfold truths of greater importance and in greater profusion than at this moment?" Since change was so clearly on the horizon, they advocated that it begin in the family. "Let the reform be commenced here, on the principles of physiology and health, and a gradual process of regeneration will be entered on that will produce the most salutatory effects upon the habits, characters, motives, and actions of all mankind."[17] As Dr. Mary Wood-Allen, chair of the Woman's Christian Temperance Union Purity Department, plainly put it in one of her advice books to women and girls: "I am of the opinion that women were not intended to be invalids in any degree because of their womanhood."[18] For centuries Eve had served as the defining element of maternity; now evolution promised to redefine motherhood in terms of health and ground reproduction in a new set of rules based on "fitness."

Thanks to advancements in science and obstetrics, popular author Marion Harland noted that the "sacred primal curse" of her grandmother's generation, which they abided and "endured with shame and loathing," had been lifted. She counseled expectant mothers to "*walk regularly, out-of-doors*" because "fresh air and cheerful exercise, the panacea for so many fleshly ills, are never more truly a catholicon than to you, as now

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and Childrearing in America (New Brunswick: Rutgers University Press, 2006). See also, Barbara Ehrenreich and Deirdre English, *For Her Own Good: Two Centuries of the Experts' Advice to Women*, Second Anchor Books edition (New York: Anchor Books, 2005).

[17] Monfort Allen, M.D. and Amelia McGregor, M.D. *The Woman Beautiful, or Maidenhood, Marriage, and Maternity* (Philadelphia: National Publishing, 1901), 44-45.

[18] Mary Wood-Allen M.D., *Almost a Woman*, Teaching Truth Series (Cooperstown: Arthur H. Crist, 1911), 59. Copy residing at the CHM.

situated." To buttress this healthy model of pregnancy, Harland relied on natural analogies: "Pregnancy is no more a disease than is the ripening of a peach, the 'running to seed' of a lily."[19] Because all life had evolved from the same organism, women could learn lessons about pregnancy from plants. Eliza Bisbee Duffey's *What Women Should Know: A Woman's Book About Women* (1873) also sought to dispel the myth that women were naturally invalids who should avoid physical exertion at all times and especially when pregnant.[20] She shared with readers her personal experiences of exercising during pregnancy and her belief that this had resulted in much easier labor, an idea seconded by Drs. Allen and McGregor, among others.[21] Darwinian evolution provided women, as well as men, with a new vocabulary for understanding themselves as part of the animal and plant kingdoms along with a new concept of reproduction as a natural process that followed scientific laws. Of course the growing demands for healthy pregnancy also had much to do with the burgeoning field of obstetrics and the professionalization of medicine, but evolutionary discourse provided a pivotal point of departure in the turn from religious definitions of pregnancy, marked by suffering and emphasizing the hereafter, to scientific ones, marked by health and stressing the here and now.

The cause of fit pregnancy allied doctors and conservative women with more progressive women, like Duffey, and even some sex radicals, such as Bernarr Macfadden, the physical culture expert and inventor of the "penis scope." Macfadden wrote several

[19] Marion Harland, *Eve's Daughters*, 422, 437, 441.
[20] E. [liza] B. Duffey, *What Women Should Know*, 43.
[21] Ibid., 252. See also, Pye Henry Chavasse, M.D., *Wife and Mother or Information for Every Woman* (Philadelphia: HJ Smith and Company, 1888); Burt Wilder, *What Young People Should Know: The Reproductive Function in Man and the Lower Animals*.

advice books for both men and women, and healthy pregnancy was one of his most frequent themes.[22] Macfadden, for example, counseled expectant fathers to "study the sexual lives of the lower animals" because all human sexual relations mirrored those of animals and, in many cases, animals seemed healthier than humans.[23] What united these disparate authors was their belief that reproduction drove the evolutionary process and their conviction that reproduction must abide by natural laws, not theological doctrine. As the source of future offspring, it was imperative that mothers be in good physical shape.

A key element in these efforts to make pregnancy healthier was the revivified campaign against the corset, a movement that dated back to the antebellum era. At the end of the nineteenth century, doctors and reformers repeatedly urged women to abandon the corset because "tight-lacing" was one of the primary impediments to women's reproductive health.[24] To medical experts, the corset was an unnatural hindrance to the normal functioning of organs and the proper development of the fetus. To progressive women and men, the corset symbolized women's ornamental status and impractical occupations. Dress reform was high on the list of priorities of Marion Harland. In *Eve's Daughters, or Common Sense for Maid, Wife, and Mother*, she quoted numerous doctors who joined her in decrying the corset. Not only did corsets result in a "'crimson-tipped'

[22] See, for example, Bernarr Macfadden and Marion Malcolm, *Health -- Beauty -- Sexuality from Girlhood to Womanhood*.

[23] Bernarr Macfadden, *Manhood and Marriage* (New York: Physical Culture, 1916), 70-71.

[24] See also, Lucinda Chandler, "Enlightened Motherhood—How Attainable," *Papers and Letters Presented at the First Woman's Congress of the Association for the Advancement of Woman* (1873) (New York: Mrs. William Ballard, 1874). Miscellaneous Organizations, box 10, folder 2, SSC.

nose as fiery as a "dram drinker's," she warned, they also proved "murderous" to the unborn children sacrificed for the appearance of a small waist.[25]

The evils of corset wearing could hardly be overstated. The cover of Bernarr Macfadden's pamphlet "The Corset Curse" depicted the devil himself tightening the corset's strings. Macfadden addressed this pamphlet to young men whom he advised to seek unlaced wives because, he warned, the corset stunted the growth of girls, "unsexed" women, and thwarted female's natural love of maternity. With characteristic hyperbole, Macfadden predicted, "[t]ake away the deadly corset and in one generation the race will improve one hundred percent."[26] Fit pregnancy, including dress reform, united a cast of unlikely proponents because it met feminists' demands for increased physical activity, more practical dress, and greater female autonomy, as well as conservatives' interest in maximizing the number of healthy offspring born to each woman. Each side drew on the Darwinian principles that reproduction drove the evolutionary process and that reproduction was natural and need not be the curse of women.

Female Superiority

In addition to refuting the idea that pregnancy had to be debilitating, evolutionary theory provided astute readers with evidence of female superiority based on maternity. If, as Darwin asserted in *The Descent of Man*, reproduction was the driving factor in the

[25] Harland, *Eve's Daughters*, 349.

[26] Bernarr Macfadden, "The Corset Curse, Enslaves Women, Destroys Sex, Crushes Soul, Deforms Body" (New York: Physical Culture Publishing, 1904), courtesy of Harvard Open Collections Program: Women Working, http://pds.harvard.edu:8080/pdx/servlet/pds?id=2988911&n=5&res=3&imagesize=1200

evolutionary process, then women played the principal role. After all, men could not carry or nourish offspring from their own bodies, and it was the females, through parturition and later care, who largely determined whether or not progeny survived. Furthermore, Darwin asserted that the first organisms were most likely "hermaphrodite or androgynous," an assertion that inspired some reformers to challenge the inevitability of patriarchy.[27] Led by Lester Frank Ward, some progressive thinkers interpreted humans' hermaphroditic origins to mean that the first sexed organisms were female and that the male was developed only as an afterthought to expedite reproduction – a complete reversal of the Garden of Eden story.[28] Regardless of who evolved first, male or female, others believed motherhood alone established female superiority. As one advice book author observed, "[t]he role of the Male in Nature is secondary to that of the Female, for she is the Mother -- the Generatrix -- of all animate beings; and it is more important for us to have highly endowed mothers than fathers with like characteristics."[29]

Arguments about maternal superiority were multivalent and supported a variety of conflicting claims. Many nineteenth-century female reform societies and women's clubs focused on female exceptionalism and promised that women's special traits would clean up society.[30] Similarly, those men invested in the threat of "race suicide" used the rhetoric of maternal superiority to encourage women to forsake other educational and professional opportunities in order to have more children. But, women interested in

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[27] Darwin, *Descent* I, 207.

[28] Lester Frank Ward, "Our Better Halves," *The Forum* 6 (November 1888): 266-275. For more on Ward's thinking about gender, see, Barbara Finlay, "Lester Frank Ward as a Sociologist of Gender: A New Look at His Sociological Work," *Gender and Society* 13 (April 1999): 251-265.

[29] James Foster Scott, *The Sexual Instinct*, 119.

[30] Historian Anne Firor Scott refers to this popular nineteenth-century idea as "municipal housekeeping." See Scott, *Natural Allies* (1991).

revolutionizing society's understanding of gender also utilized Darwinian ideas about reproduction and maternity to argue for female superiority.

Mrs. Elizabeth Osgood Goodrich Willard was among the first women to recognize the radical potential of evolution for gender. In *Sexology as the Philosophy of Life* (1867), Willard claimed that the idea of special creation by God had been "fully exploded among scientific men," and, thus, the real miracle of creation was reproduction and sex. As a result, she argued, we should pay more attention to the sexual laws and women's powers within them. Foreshadowing arguments advanced by women decades later, Willard declared, "[w]omen's powers must be reflected not only in the marital relationship and within the family, but also in government." She declared:

> The assumption of masculine *superiority*, *supremacy* and *mastership* in the sexual law and parental office is very much in accordance with the spirit of the red-combed cock of the barn-yard, and would seem much more appropriate from the mouth of the petty tyrant who wears a cockade than from the lips of philosophers, (?) who read the great laws of nature.[31]

Relying on examples from the animal kingdom, Willard did not argue that women's maternity caused them to be more moral or better behaved than men, but that women's maternity was a power previously underestimated by male scientists and philosophers. The "great laws of nature" decreed that women should play a leading role in all facets of society.

Antoinette Brown Blackwell advanced a similar argument for much of her professional life. To Blackwell, evolution clearly repudiated the timeworn justifications for women's inferiority based on Eve, arguments Blackwell had encountered countless

[31] Mrs. Elizabeth Osgood Goodrich Willard, *Sexology as the Philosophy of Life*, 156-157.

times on her path to becoming the nation's first ordained female minister, and should have led to the immediate emancipation of women. Blackwell insisted that Darwin's theories demanded the natural equivalence of males and females and, in some cases, female superiority because "no male of any species high or low is known to afford direct nutrition to the young." While males could indirectly nourish their young through hunting or working for a paycheck, nature endowed women with the unique ability to feed their young from their own bodies. According to Blackwell, natural selection made it "inevitable" that "Nature herself systematically favors the females – the mothers of the destined races. Nature's sturdiest buds and her best-fed butterflies belong to this sex; and her female spiders are large enough to eat up a score of her little males."[32] Drawing on Darwin's suggestion in the *Descent* that reproduction, not survival, drove the evolutionary process, Blackwell found much evidence of female superiority among both animals and humans. Not only could females directly nourish their offspring, but nature also provided them with a surplus of energy which enabled them to care for their young, work harder, and live longer than men.[33] Thus, Blackwell used evolutionary principles and methods to reverse the theological and popular doctrine that women's maternity was inherently tied to her "natural" inferiority.

Perhaps the woman who best articulated the Darwinian argument for female superiority, however, was Eliza Burt Gamble. Gamble was a socialist who left traditional

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[32] Antoinette Brown Blackwell, *The Sexes Throughout Nature*, 29, 144.

[33] Blackwell made these points repeatedly. See, for example, chapter 1 of *The Sexes Throughout Nature*; "Heredity," a paper presented at the 11th annual Women's Congress, Association for the Advancement of Women, Sorosis Collection, Box 5, folder 9, SSC; and "The Comparative Longevity of the Sexes," paper delivered at 1884 American Association for the Advancement of Science Convention, copy available at the CHM.

suffrage activities to probe the history of female subordination, and ended up writing books about the Bible and evolution. Like Blackwell, Gamble progressed from combating the gospel of Paul to studying the works of Darwin and arguing for a reevaluation of woman's place based on evolutionary principles. In 1880, she was inspired by an anti-suffrage article by Mr. Francis Parkman to publish her own critique of Parkman and St. Paul. By 1882, she had reached the conclusion that "the female organism is in no wise inferior to that of the male." Until Gamble began studying Darwin's *The Descent of Man* in 1886, however, she lacked a theory on which to base her hypothesis. After carefully reading the *Descent*, Gamble "became impressed with the belief that the theory of evolution, as enunciated by scientists, furnishes much evidence going to show that the female among all orders of life, man included, represents a higher stage of development than the male" largely because of their reproductive organs and functions.[34]

Understanding that centuries of female subordination had been based on the idea that woman supposedly "owed her existence to a surgical operation performed upon him [Adam]," Gamble was disappointed when evolution did not immediately lead scientists to question patriarchy.[35] She believed that male scientists had overlooked or misinterpreted what the theory meant for questions of gender. In particular, she was surprised to find that Darwin and other scientists had amassed all the evidence for female

[34] Eliza Burt Gamble, preface to first edition of *The Evolution of Woman* (1893), later republished as *The Sexes in Science in History: An Inquiry into the Dogma of Woman's Inferiority to Man* (New York: G.P. Putnam's Sons, 1916), v. A handful of scholars have also written about Gamble's feminist interpretation of evolution. The most thorough analysis is Rosemary Jann, "Revising the Descent of Woman: Eliza Burt Gamble" in *Natural Eloquence: Women Reinscribe Science*, ed. Barbara Gates and Ann Shteir (Madison: University of Wisconsin Press, 1997): 147-163.

[35] Gamble, *Sexes in Science and History*, vii.

superiority and yet "seemed inclined to ignore certain facts connected with this theory which tend to prove the superiority of the female organism."[36]

Gamble also critiqued Darwin's statements about the evolution of male superiority. Darwin believed males were superior because they had more pronounced secondary sex characteristics, including horns, tusks, and brightly colored feathers. To Gamble, however, such traits were really "hindrances to further development" and evidence of male inferiority. These traits:

> are not within the true line of development, but, on the contrary, as their growth requires a great expenditure of vital force, and, as is the case among birds, they often hinder the free use of the legs in running and walking, and entirely destroy the use of the wings for flight, they must be detrimental to the entire structure.[37]

Male decorative flourishes evidenced waste, not complexity, and, therefore, could not be evidence of higher evolution. Gamble agreed with Darwin's basic assertion that the most highly evolved species were the most differentiated by sex, but she argued that the logical conclusion to be drawn from this was that females were superior to males because they were more complexly organized. The trump card, according to Gamble, was the female's ability to feed her young from her own body.

Gamble also chided Darwin for celebrating the greater courage, pugnacity, and perseverance of the male, while overlooking the attendant female virtues of perception, intuition, and endurance.[38] She contended that "the individual which must protect the germ, and by processes carried on within her own body provide nourishment for the young during its prenatal existence, and sometimes for years after birth, must have the

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[36] Ibid., vi.
[37] Ibid., 32-34.
[38] Gamble, *Sexes in Science and History*, 76-77.

more highly specialized organism, and must, therefore, represent the higher stage of development."[39] Maternity provided women with psychological, as well as physiological, advantages over men. Over time, Gamble charged, the separation of the sexes, and their development along parallel tracks, had led to the development of "on the one side extreme egoism, or the desire for selfish gratification; on the other, altruism, or a desire for the welfare of others outside of self."[40] Much like Blackwell, she insisted that female altruism, not male competition, was the "motive force" of evolution and the driving factor in civilization. To reach this conclusion, as Rosemary Jann has suggested, Gamble used Darwin's own logic and methods, adapting evolutionary discourse and the scientific method for feminist purposes.[41]

While Gamble's arguments could be interpreted as a variant of separate spheres rhetoric, what she wrote was quite distinct from the claim that women were simply more moral and virtuous than men. Gamble called for nothing less than a reevaluation of the traits that society valued – competitiveness, aggression – and for men and women to be afforded equal, not equivalent, opportunities and rights. She did not propose that women's "inherent" nurturing traits balanced those of competitive men, but that these maternal traits were in fact superior and should be afforded a larger role in society. Thus, she challenged conventional assumptions about maternal passivity and sacrifice, and supplanted them with evolutionary ones based on strength and vigor.[42]

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[39] Ibid., 15.
[40] Ibid., 86.
[41] Rosemary Jann, "Revising the Descent of Woman," 152.
[42] For reviews of Gamble's book, see *Popular Science Monthly* 46 (1894): 275*; Critic*, 14 July 1894: 21; "Sex Predominance in Historical Development," *The Nation*, 58 (1894): 452-453. Jann attributes this review to Christine Ladd Franklin.

Gamble's words may have galvanized female readers, but male readers were not convinced. The *New York Times* review of her book was titled, "A Fearless Assault on Men." "Under a scientific garb, this book treats an old question from a somewhat original point of view," observed the *Times.* The reviewer conceded that arguments for women's equality were not new, but "[w]e have not heard, however, that woman is, by the nature of her organization, the extent of her development, and her primary characteristics, man's superior." The *Times* resisted Gamble's conclusion that men were, in their words, "totally devoid of admirable qualities" while "divinity itself might shrink before the blaze of virtue in which woman is enveloped." Ironically, the *Times* accused Gamble of many of the same offenses with which she charged Darwin: namely, perverting the scientific method to support one's pre-determined conclusions and overlooking evidence to the contrary.[43] While evolution provided a new lens through which to view gender, it was not entirely clear what this meant for men and women.

In light of the heightened importance evolution placed on procreation, some argued for a reinterpretation of "fitness" as well as a rethinking of the relative value of maternity. Henry Drummond, the popular Scottish evangelical and evolutionist, forcefully made this argument in *The Ascent of Man* (1894), which went through at least nine editions in the U.S. While the "struggle for the life of others" began as the reproductive impulse, Drummond maintained that this was preliminary: "The significant

[43] "A Fearless Assault on Men," *New York Times*, 11 March 1894, 23.

note is ethical, the development of Other-ism as Altruism -- its immediate and inevitable outcome."[44] This he ascribed to women:

> If there is more in Nature than the selfish Struggle for Life the secret can now be told. Hitherto, the world belonged to the Food-seeker, the Self-seeker, the Struggler for Life, the Father. Now is the hour of the Mother. And, animal though she may be, she rises to her task. And that hour, as she ministers to her young, becomes to her, and to the world, the hour of its holiest birth. Sympathy, tenderness, unselfishness, and the long list of virtues which make up Altruism, are the direct outcome and essential accompaniment of the reproductive process. Without some rudimentary maternal solicitude for the egg in the humblest forms of life, or for the young among higher forms, the living world would not only suffer, but would cease.[45]

Arguing against evolutionary materialists like Thomas Huxley and the andocentric bias of most evolutionists, Drummond believed that female virtues sustained evolutionary progress. In fact, Drummond was just one of many voices, including evolutionists John Fiske, George Romanes, Patrick Geddes, and J. Arthur Thomson, who believed that the "struggle for the life of others" was at least as important an evolutionary mechanism as the struggle to survive. According to Drummond, mothers were the "pinnacle" of this process and the most "stupendous task Evolution ever undertook." "The development, in fact, of higher forms of life on the earth has depended on the physical perfecting of Mothers, and of the physiological ties which bind them to their young."[46] Far from being an afterthought created from a male rib, mothers were the chief aim of nature and the primary players in the evolutionary saga.

[44] Henry Drummond, *The Ascent of Man*., 17.
[45] Ibid.
[46] Ibid., 280.

Should Men Prepare the Food?

Of course, arguments like Drummond's also essentialized women according to their maternity and stereotyped traits such as nurturance and patience as "female," but they did have revolutionary potential. New, evolutionary assessments of maternity and its corresponding characteristics enabled some feminists to argue for a reevaluation of domestic responsibilities and laws. Arguing on behalf of married women's legal reform, especially child custody, Dr. Frances Elizabeth Hoggan referenced the evolution of maternity and examples from the animal kingdom. She demanded that "the whole relation of the parents" be "revised and made comfortable to nature's plan."[47] Dr. Hoggan traced the evolution of parental duties from cell division to fish to mammals, finding, "[i]n general in the vertebrate kingdom, the mother is the undisputed guardian, the devoted nurse, and the courageous defender of the young." From her evolutionary investigations, Hoggan concluded that social mores and laws needed to be reformed to correspond with the "clear and unmistakable dictates of nature" where the mother's "duties and rights predominate throughout the whole animal kingdom."[48] To Hoggan, what was wrong with society was not women's increased independence, but the fact that parental relations among humans did not mirror those found in nature, the true window into what "should" be.

[47] Frances Elizabeth Hoggan, M.D., "The Position of the Mother in the Family, in its Legal and Scientific Aspects" (London: John Bale and Sons, 1885), 12. RBMSCL. This speech was delivered in 1884 before the annual Congress of the National Association for the Promotion of Social Science held in Birmingham, England.

[48] Ibid., 15.

While Hoggan relied on evolutionary principles to demand child custody reform, Antoinette Brown Blackwell believed that evolution necessitated a reevaluation of the division of domestic labor between mothers and fathers. Blackwell insisted that society had overlooked the fundamental distinction between direct nutrition, provided by females, and indirect nutrition, provided by males, leading to the misappropriation of domestic tasks. For starters, she suggested that in order for men and women to follow nature's plan, men should prepare the food. As she explained:

> *in the scientific distribution of work*, the males, not the females, must be held primarily responsible for the proper *cooking of food*, as for the *production* of it. Since we cannot thrive on the raw materials, like the lower animals, culinary processes must be *allied to indirect nutrition*.[49]

Throughout the animal kingdom males provided indirect nutrition, why not men? Since women provided direct nutrition of the young in the womb and for several months afterward, having men cook and prepare food was not only in accordance with nature, but also fair.

Blackwell, the mother of five children, further suggested that fathers might also be compelled to prepare "ready-made clothing and fires lighted on cold winter mornings!" and that if anyone ever had the right to "whine, sulk, or scold. . .because beefsteak and coffee are not prepared for her and exactly to her taste" it was the nursing mother. Furthermore, concluded Blackwell, "[i]f anybody's brain requires to be sacrificed to those two Molochs, sewing-machine and cooking-stove, it is not hers! Nature's highest law is evolution, and no hereditary evolution is possible except through

[49] Blackwell, *Sexes Throughout Nature*, 113.

the prolonged maternal supervention."[50] To Blackwell, thinking about motherhood in terms of evolution meant comparing humans with animals and rejecting the elements of domesticity she deemed unnatural. Increasing men's household tasks would not only expedite the evolutionary process by ensuring gender equivalence but also remove unnecessary, unnatural burdens from women.

Redistributing domestic labor to match her interpretation of evolutionary mandates was a central theme of Blackwell's work. She published a series of articles in the *Woman's Journal* and presented papers at several Association for the Advancement of Women (AAW) conventions on the topic of "Sex and Work." In this series, as well as the series "Work in Relation to the Home," Blackwell developed and clarified her demands for the more equitable division of domestic and professional labor, ideas she first mentioned in *The Sexes Throughout Nature*. Blackwell believed that society was in a state of transition but that eventually "to the majority of women, domestic duties will probably bear about the same relation to outside work as private business does to the majority of men." She also believed that "in all equitable households" men and women should be expected to expend the same amount of time and labor on both domestic and professional tasks.[51] Such a system was the only way to guarantee the gender equivalence upon which Blackwell's whole evolutionary schema rested.

Blackwell's ideas resonated within the circle of women who read the *Woman's Journal* and attended conferences sponsored by suffrage associations and the AAW. In

[50] Ibid., 113-116.

[51] Antoinette Brown Blackwell, "Work in Relation to the Home, II," *The Woman's Journal,* 9 May 1874.

fact, Blackwell was not alone in the 1870s in calling for the redistribution of labor based on evolutionary laws. Adding an evolutionary perspective to the scope of mother's duties had simply made the task too time-consuming for women, argued Anna C. Garlin at the Fourth AAW Congress of Women. Women were now called to do lots of new things, such as learn hereditary laws, leaving them with less energy and less desire for child-rearing:

> Added knowledge of the laws of inheritance, of physiology and hygiene is awakening women to the consciousness that lives so burdened can seldom transmit both physical and mental power to their offspring; while the taste for learning and self-culture, which is the fruit of better education for women, makes a large and increasing class of women shrink from that average condition of family life which has in it little or no place for the individual mental development of the woman who is its head.

But the situation was not impossible. With a little creativity, women could be both mothers and intellectually fulfilled human beings. All that was needed was "the division and combination man has used in his work," including the "annihilation of the private kitchen and laundry;" the establishment of "public nurseries," and the "simplification of clothesmaking."[52]

Blackwell and Garlin's attempts to revolutionize domestic labor anticipated those of the much better-known evolutionary feminist Charlotte Perkins Gilman, whose *Women and Economics: A Study of the Economic Relation Between Men and Women as a Factor in Social Evolution* (1898) drew heavily upon her interpretation of Darwinism.[53]

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[52] Anna C. Garlin, "The Organization of Household Labor," *Papers Read at the Fourth Congress of Women*, AAW, Philadelphia, October 1876 (Washington, D.C.: Todd Brothers, 1877), 32-33.

[53] Charlotte Perkins Gilman, *Women and Economics: A Study of the Economic Relation Between Men and Women as a Factor in Social Evolution*, edited and with an introduction by Carl Degler (Boston: Small, Maynard, and Company 1898, reprint New York: Harper Torchbook, 1966;), 5 (page citations are to the reprint edition). For biographies of Gilman, see Mary A. Hill, *Charlotte Perkins Gilman: The Making*

According to Gilman, the main problem with society was that women were economically dependent upon men, a fate without parallel in the animal kingdom. This false dependence not only hindered women's growth but defied natural law and stalled evolutionary progress.

Integral to Gilman's understanding of evolution was sociologist Lester Frank Wards' "gynaecocentric theory," first laid out in an 1888 article in *The Forum* and later elaborated on in his two-volume *Pure Sociology* (1903).[54] Gilman dedicated *The Man-Made World or Our Androcentric Culture* (1911) to Ward because "all women are especially bound in honor and gratitude for his Gynaecocentric Theory of Life, than which nothing so important to humanity has been advanced since the Theory of

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of a Radical Feminist, 1860-1896 (Philadelphia: Temple University Press, 1979) and Gary Scharnhorst, *Charlotte Perkins Gilman*, Twayne's United States Authors Series (Boston: Twayne, 1985). Scharnhorst has also compiled a comprehensive bibliography of Gilman's writing: *Charlotte Perkins Gilman: A Bibliography* (Metuchen: Scarecrow, 1985). See also, Jill Rudd and Val Gough, ed. *Charlotte Perkins Gilman: Optimist Reformer* (Iowa City: University of Iowa Press, 1999). For further analyses of the role of evolution in Gilman's thought, see Carl Degler's introduction to the 1966 edition of *Women and Economics*, as well as Carl Degler, "Charlotte Perkins Gilman on the Theory and Practice of Feminism," *American Quarterly* 8 (Spring 1956): 21-39; Gail Bederman, "Not to Sex- but to Race!" Charlotte Perkins Gilman, Civilized Anglo-Saxon Womanhood, and the Return of the Primitive Rapist," in *Manliness and Civilization: A Cultural History of Gender and Race in the United States, 1880-1917*: 121-169; Maureen L. Egan, "Evolutionary Theory in the Social Philosophy of Charlotte Perkins Gilman," *Hypatia* 4 (Spring 1989): 102-119; Bernice L. Hausman, "Sex Before Gender: Charlotte Perkins Gilman and the Evolutionary Paradigm of Utopia," *Feminist Studies* 24 (Fall 1998): 489-510. For an analysis of Gilman's thought in relation to Spencer's see Lois N. Magner, "Darwinism and the Woman Question: The Evolving Views of Charlotte Perkins Gilman," in *Critical Essays on Charlotte Perkins Gilman*, ed. Joanne Karpinski, Critical Essays on American Literature Series, ed. James Nagel (New York: G.K. Hall, 1992): 115-128. Bederman's assessment of Gilman's evolutionary feminism is particularly compelling. She argues that racism was not tangential to Gilman's ideas, but foundational. According to Bederman, when Gilman spoke of "the race" she meant the white race and her theories essentially sought to bolster white racial supremacy by incorporating the contributions of white women. In other words, she wanted to replace male supremacy with white supremacy (121-124).

[54] For more information on Ward's gynaecocentric theory, see Clifford Scott, "A Naturalistic Rationale for Women's Reform: Lester Frank Ward on the Evolution of Sexual Relations," *Historian* 33 (November 1970): 54-67. See also Clifford Scott, *Lester Frank Ward* (Boston: Twayne, 1976).

Evolution, and nothing so important to women has ever been given to the world."[55] Evolution showed people how change happened over time and introduced them to new ways of thinking about gender and sex; Ward added to that a new appreciation for women and maternity. According to Ward, regardless of women's current or historical place in society, "in the economy of organic nature the female sex is the primary, and the male a secondary element" because of the females' reproductive capacities.[56]

In assessing recent scientific pronouncements about gender, Ward was surprised that "those who start out avowedly from a Darwinian standpoint should so quickly abandon it and proceed to argue from pre-Darwinian premises."[57] How could a theory based on reproduction deny the principal reproducers the lead role? Specifically, Ward argued that evolutionary science definitively demonstrated that "woman is the grandest fact in nature" and that "the elevation of woman is the only sure road to the evolution of man."[58] He suggested that true change would happen only when reformers recognized women's supreme role in nature and reordered social and sexual relationships accordingly, a demand that matched Gilman's own priorities and provided the basis for much of her philosophy.

One of the reasons Gilman found Ward's gynaecocentric theory to be so useful was its relationship to the Genesis creation story. In Gilman's review of *Pure Sociology*, she explained:

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[55] Charlotte Perkins Gilman, Dedication, *The Man-Made World, or Our Androcentric Culture*, 3d ed. (New York: Charlton Company, 1914).

[56] Lester Frank Ward, "Our Better Halves," 266.

[57] Ibid., 269.

[58] Ibid., 275.

> Our ideas are all based on the primal concept expressed in the Adam and Eve story – that he was made first, and that she was made to assist him. On this assumption rests all our social structure as it concerns the sexes. Reverse this idea once and for all; see that woman is in reality the race-type, and the man the sex-type – and all our dark and tangled problems of unhappiness, sin and disease, as between men and women, are cleared at once.[59]

Gilman recognized that the legend of Eve constrained people's thinking and hindered the women's movement to an immeasurable degree, and, like Stanton, she realized that a reformist interpretation of evolution could free women from the legacy of Eve. She also embraced Ward's theory because his claim that women were the "race type," responsible for advancement and transmitting the best qualities to offspring, while men were the "sex type," useful only for reproduction, justified her own efforts to ally the cause of white women with the interests of white men at the expense of people of color. Much like Helen Hamilton Gardener and Stanton, Gilman's interpretation of evolution led her to a feminism grounded in racial difference and hierarchy.[60]

So central was the Garden of Eden story to Gilman's understanding of female subjugation that she began *Women and Economics* with her own creation story in the form of a "proem." In Gilman's version of Eden, "twofold man was equal" until man found the "Tree of Knowledge" and realized that he could rule over woman, his former comrade, by keeping her weak. Men and women had continued in this state of inequality until the end of the nineteenth century when Gilman argued it was no longer in their evolutionary best interest to do so. Gilman assured readers that her reevaluation of gender would not lead to free love, anarchy, or the demise of the family. To the contrary,

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[59] Gilman, "Comment and Review," *The Forerunner* 12 (October 1912): 26.

[60] For an excellent discussion of the racial, and racist, dimensions of Gilman's feminism, see Bederman, *Manliness and Civilization*, and Newman, *White Women's Rights*.

she suggested that allowing women to be economic producers would make them better wives and better mothers and that divesting marriage of its economic function and freeing the mother from her servant duties would make for stronger families, as well as better individuals. This interpretation of evolution allowed adherents to imagine a world populated by strong, self-sufficient women, who selected strong mates (or dispensed with them entirely as Gilman did in *Herland,* her utopian novel published in 1915), engaged in egalitarian marriage, and raised healthy children through adherence to natural, not biblical, laws.[61]

Of course, Gilman was hardly a strict Darwinian, or an exclusive follower of Ward's for that matter, she also drew on Spencer and Lamarck. Her varied reading in evolution led her to believe that improving the social environment would benefit both current and future generations. Like Ward, Gilman can best be understood as a "reform Darwinist," someone who thought that people should shape the evolutionary process and who believed that evolution was inherently a progressive force, leading to ever more growth and development. Though not an orthodox Darwinian, her worldview was profoundly shaped by the Darwinian revolution and her "conversion" to evolution. In fact, Gilman considered evolution to be her religion.[62] Evolutionary science's influence on Gilman's feminism is evident in the list of topics that she lectured on, including: "the origin of sex, its special qualities, purpose and normal use;" "effect [of male dominance] on the development of the species;" "our dominant male and his influence on human

[61] Charlotte Perkins Gilman, *Herland,* reprint with an introduction by Ann J. Lane (New York: Pantheon Books, 1979).

[62] For an extended discussion of Gilman's conversion, see, Bederman, *Manliness,* 127.

evolution;" and "The larger feminism- the biological base, sex, science, and sentiment."[63] All relied on the theory of sexual selection, understanding humanity in terms of the animal kingdom, and the scientific scrutiny of romanticized ideals about motherhood.

In *Women and Economics* (1898), Gilman elucidated the ideas that would characterize much of her later work: women had become too feminine; this "over-sexing" of women thwarted not only individual development but also race progress; to correct this, society would have to rethink the social construction of marriage, the family, and the home. At the heart of the problem was the "sexuo-economic relationship" – the fact that the only way most women could support themselves was through marriage. Drawing on examples from the animal kingdom, Gilman pointed out that "[w]e are the only animal species in which the female depends upon the male for food, the only animal species in which the sex-relation is also an economic relation."[64] Such unnatural dependence and exaggeration of sex differences, she asserted, led to many social and political problems including high rates of infant mortality, unhappy marriages, and prostitution. Furthermore, this situation perverted the evolutionary process because men selected women according to their "femaleness," not according to their overall "fitness" as humans.

Drawing on *The Descent of Man*, Gilman explained that in the state of nature, natural selection served as a check against excessive sexual selection. The peacock's tail could never become too bright or too big, for example, because a gigantic tail would

[63] Pond Bureau promotional flyer for Charlotte Perkins Gilman, Women's Rights Collection, Box 3, Folder 7, SSC.

[64] Gilman, *Women and Economics,* 5.

impede the individual's survival. Among humans, however, Gilman contended that natural selection now worked in accordance with sexual selection because females depended on males for food.[65] In other words, for women, men *were* the environment. Rather than check excessive sexual differentiation, natural selection promoted it, ensuring that the most feminine women were those most likely to marry and, thus, survive. This was dangerous, Gilman suggested, because these women were "too female for perfect motherhood!" The most frail, least self-sufficient women were the ones most likely to marry and the least likely to produce strong, healthy offspring. As Gilman reasoned, "[t]he more absolutely woman is segregated to sex-functions only, cut off from all economic use and made wholly dependent on the sex-relation as a means of livelihood, the more pathological does her motherhood become."[66] Here Gilman inverted the path etched out by male evolutionists, including Darwin, whereby the species with the most differentiated sexes were the most advanced. Instead, Gilman argued that excessive sex distinction led to "morbid excesses" in sexual attraction and stymied racial progress.[67]

Misunderstandings of motherhood buttressed these wrongheaded and detrimental ideas. According to Gilman, Americans had become inured to excessive sex distinctions because they had been taught to believe they were necessary for ideal motherhood. Popular reverence for motherhood discouraged people from thinking critically about it. Gilman exhorted her readers to "turn the light of science and the honest labor of thought upon this phase of human life as upon any other." After all, "[m]otherhood is but a

[65] Ibid., 37.
[66] Ibid., 182.
[67] Ibid, 32-37. Bederman persuasively argues that Gilman's use of the term "race" nearly always meant white race either explicitly or implicitly.

process of life, and open to study as all processes of life are open."[68] Like many women who came of age in the Darwinian era, Gilman trusted in science to reveal the truth in nature and, especially, the truth about gender. If mothers were to be accorded such lofty praise and excused from all productive labor on account of maternity, shouldn't Americans at least determine whether or not non-productive women made the best mothers, Gilman asked. According to her scientific estimates, human mothers paled in comparison to their animal counterparts, who raised far more healthy children with far fewer resources: "The human mother does less for her young, both absolutely and proportionately, than any kind of mother on earth." Gilman concluded there was no "special superiority in human maternity."[69]

At the root of this false glorification of motherhood was the tendency to cloak it in divine, rather than natural, terms. Instead of teaching young women about the physiological and psychological demands of motherhood, Gilman charged that Americans presumed motherhood would be "fulfilled by the mysterious working of what we call 'the divine instinct of maternity.'" Gilman countered, "[m]aternal instinct is a very respectable and useful instinct common to most animals. It is 'divine' and 'holy' only as all the laws of nature are divine and holy; and it is such only when it works to the right fulfillment of its use."[70] She broke down the logic that demanded that mothers devote all their time to the home by pointing out that it a) wasn't natural to do so, and b) this method had not succeeded in producing the most healthy children. Using

[68] Ibid., 178.
[69] Ibid., 189-190.
[70] Ibid., 194.

evolutionary principles and animal examples, Gilman challenged the nineteenth-century glorification of the mother, which was a central building block in the development of separate spheres ideology. The non-productive, highly feminized mother typified nineteenth-century depictions of women as well as many women's estimates of themselves. Gilman's study of evolution forced her to reject this image. Not only did Gilman refuse to emulate the idealized mother in her own life, she had the temerity to suggest that such women were not in fact the best mothers.

Rather than gild motherhood in encomium, Gilman looked to the animal kingdom for examples of harmonious distribution of labor and suggested that human domestic labor be reconfigured to make it both cooperative and remunerative. Distributing household labor, such as cooking and cleaning, to paid specialists would increase the value of the work, enable women to become economically productive members of society, and eradicate the sexuo-economic relationship. As a first step, she proposed replacing individual kitchens in homes and apartments with centrally located ones where trained professionals would prepare the food: "Eating is an individual function. Cooking is a social function."[71] According to Gilman, neither were family functions. Furthermore, she argued, removing unpaid domestic labor from the hands of the wife would produce better children as well as resolve the problems caused by excessive sex distinction by allowing women to develop their human attributes through productive labor outside the home. Economic marriage was a phase out of which humans needed to evolve.

[71] Ibid., 240.

Gilman's application of evolutionary theory to traditional ideas about maternity resulted, in the words of Carl Degler, in "probably the most devastating indictment of traditional nineteenth-century motherhood ever written."[72] Not only did she propose a radical reorganization of the home, she also dared to challenge the sanctity of the non-productive angel of the house. The impact of *Women and Economics* matched Gilman's powerful demands. The book went through seven editions, was translated into seven different languages, and was frequently used as a college textbook in the years prior to 1920. The *Nation* declared *Women and Economics* "the most significant utterance on the subject [of women] since Mill's *Subjection of Woman.*" And Carrie Chapman Catt, the venerable president of the National American Woman Suffrage Association, placed Gilman at the top of her list of the dozen greatest American women.[73]

Not surprisingly, Gilman's premise that women's emancipation was predicated on revolutionizing the home and family life generated much discussion among women. While many left-leaning women lauded her work, others were not convinced. The *Clubwoman*, the organ of the General Federation of Women's Clubs, critically reviewed Gilman's *Concerning Children* (1901), which elaborated on ideas first annunciated in *Women and Economics*. The reviewer recognized that it was a brilliant book "however much the average mother may quarrel with her judgment or reject her conclusions." The "average mother," the *Clubwoman* clarified, was not interested in cooperative child care because she was perfectly capable of fulfilling her God-given function and bringing up her own children. The reviewer also took offense at Gilman's suggestion that there might

[72] Degler, introduction to *Women and Economics*, xxvi.
[73] Ibid., xix.

have been a better way to raise a family: "Mrs. Gilman is inclined, we think, to go to extremes, especially when she takes the ground that the average, well-educated and affectionate mother is wholly unfit to bring up her own children."[74] The New England Women's Club inadvertently debated *Women and Economics* during a group discussion of whether or not women should work for money if they were not forced to by necessity. Apropos of this question, Mrs. White brought up *Women and Economics* and declared its influence as "misleading and pernicious."[75] Clearly, Gilman was treading on sacred terrain.

Gilman's most strident opponents, however, were women with their own competing interpretations of evolutionary motherhood. Elizabeth Sloan Chesser's *Woman, Marriage, and Motherhood* (1913), which was endorsed by the National Congress of Mothers and the Parent-Teacher Association, relied on evolutionary principles to argue that women who worked in the home were the best sort of mothers. Chesser traced the evolution of maternity from the single cell to the birds to the mammals. Along the way she found much to praise, including the male stickleback who "builds the nest for the young, safeguards his wife and offspring, and is an excellent helpmate – an example to many irresponsible husbands much higher in the life scale."[76] But she distinguished between maternity, which humans and animals both experienced, and motherhood which was the sole province of women because it encompassed "ethical"

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[74] Review of *Concerning Children* by Charlotte Perkins Gilman, *The Clubwoman*, February 1901.

[75] New England Women's Club, Discussion Committee, 1898-1899. New England Women's Club Collection, Discussion Committee, folder 72, SLRI.

[76] Elizabeth Sloan Chesser, *Woman, Marriage, and Motherhood*, with an introduction by Mrs. Frederic Schoff, president of the National Congress of Mothers and Parent-Teacher Association (New York: Funk and Wagnalls, 1913), 9.

and "psychological" attributes. According to Chesser, previous civilizations treasured these maternal virtues during the earlier "mother age," but the advent of Christendom, especially the Reformation, doomed women to their current second class status.[77] While Chesser agreed with Gilman that "[b]iologically, the mother is paramount" and "[s]ocially, the mother is the basis of racial progress," she believed that women needed more sex-specific training, not less. To ensure that mothers would not have to work outside the home, Chesser adopted the traditional evolutionist stance on sex differences and argued that "[t]he higher the species, the more difference between male and female; the more apparent do the secondary sexual characteristics become." She believed that her system better accorded with evolutionary doctrine because "[i]t is the differences between the two sexes that provide the most valuable evolutionary factors."[78]

Relying on the same basic texts and ideas as Gilman, Chesser came up with the exact opposite solution. She critiqued Gilman's *Women and Economics* and its "amaternal theory" of cooperative housekeeping and childcare for being "against nature, biology, the lessons of human evolution." Instead, she suggested that the government set up a Home Department, state hospitals for mothers, insurance for mothers, and pensions for mothers. Rather than dismantle the private home, Chessler suggested Americans institutionalize it.

Critics frequently juxtaposed Gilman's evolutionary vision of motherhood with that of influential Swedish feminist Ellen Key who was also an enthusiastic Darwinian.

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[77] References to the "mother age" or "matriarchate" were common during this time period among women's rights activists, progressive reformers, and anthropologists. See, for example, Matilda Joslyn Gage, *Woman, Church, and State: The Original Exposé of Male Collaboration Against the Female Sex*.

[78] Chesser, *Woman*, 262-270.

Key played up these differences by frequently mentioning Gilman's "amaternal" work as the antithesis of her own, an opposition that Gilman seems to have resented.[79] In *The Century of the Child* (1909), Key laid out her proposal for the future of motherhood and the family. Based on her belief in evolution and her interest in the latest hereditary and eugenic theories, Key suggested that all parental and societal decisions be based on the best interests of the child. In an interesting twist, she included more liberal views toward divorce and extramarital sexual relations under the category of things that might benefit children. Children prospered in happy homes, she wrote, and people should allow for freedom in sexual relationships wherever they are found.

Key called evolution "the holiness of generation," and in her worldview it replaced religion as the ordering principle of life, as it had for Gilman. She argued that people should make decisions based on the future growth and development of the race, not on what may or may not happen in the afterlife. The Ten Commandments, Key suggested, should govern the conditions by which healthy children were produced and should be determined by scientists, not theologians. She argued that "the greatest obstacle to the free discussion of this theme [the relations between the sexes] is still the Christian way of looking at the origin and nature of man."[80] For too long, women had been taught to model themselves on the Virgin Mother and view sex as shameful. Key rejected this view:

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[79] See, Charlotte Perkins Gilman, "On Ellen Key and the Woman Movement," *The Forerunner* 4 (February 1913): 35-38. She pointed out that the two shared much common ground, with the exception of whether or not women should devote themselves entirely to motherhood.

[80] Ellen Key, *The Century of the Child* (New York: G.P. Putnam and Sons, 1909), 8.

> No, we must on the basis of natural science attain, in a newer and nobler form, the whole antique love for bodily strength and beauty, the whole antique reverence for the divine character of the continuation of the race, combined with the whole modern consciousness of the soulful happiness of ideal love.[81]

Christianity taught that the body was sinful, whereas evolution taught Key that the flesh deserved worship because it enabled the future evolution of the race. Rather than study the scriptures, Key exhorted men and women to "learn the laws of natural selection and act in the spirit of these laws."[82]

Unlike Gilman, however, Key's new ethic of reproduction also involved the total dedication of women to their maternal functions. Key believed that each individual mother was the person best suited to meet every one of her child's needs – educationally, emotionally, nutritionally, and health-wise – and that women could never equal men in the professions as a result of this all-encompassing responsibility. "I have shown more than once that woman by her maternal functions, uses up so much physical and psychical energy," wrote Key, that in the "sphere of intellectual production she must remain of less significance."[83]

Gilman rejected Key's demands for what she called "primitive motherhood." She believed that household and child-rearing duties were better performed by trained specialists because they would increase the level of job performance as well as liberate individual housewives to enter productive labor and develop themselves as humans. According to Gilman, "[a] mother who is something more – who is also a social servant – is a nobler being for a child to love and follow than a mother who is nothing more –

[81] Key, *The Century*, 12.
[82] Ibid., 46.
[83] Ibid., 58.

except a home servant." Children, including babies, would learn more and develop better if they spent part of the day taught by trained experts in an educational environment rather than in a "small isolated building, consecrated as a restaurant and dormitory for one family."[84]

Gilman also criticized Key for thinking of women as females first, humans second. To Gilman, this seemed utterly unscientific and opposed to evolutionary progress. As she wrote in the *Forerunner*:

> Ellen Key, with the rest of the world, fails to recognize that distinction of species is far larger and more important than the distinction of sex. Our humanness is a quality common to both sexes, and the evil of the previous position of women is that they were confined to the exercise of sex faculties only—however nobly developed, and denied the exercise of the human ones.[85]

It went against evolutionary law to exclude women from fully exercising all their human capacities. In later iterations, Gilman took this a step further, arguing that women were in fact superior to men: "In recent lectures I have been endeavoring to make clear the fact of the superiority of the female sex to the male throughout nature generally, not excepting the human race: i.e. women are superior to men."[86] To her, it seemed absurd to make women, the more important and highly developed individuals, do the drudge work of the race.

The debates between Gilman and Key highlighted the multivalence of evolutionary discourse, especially with regard to questions of gender and sex. But they

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[84] Charlotte Perkins Gilman, "The New Motherhood," *The Forerunner* 1 (December 1910): 17-18. See also Gilman's review of Key's *Love and Marriage*, Comment and Review, *The Forerunner* 2 (October 1911): 280, and her review of *The Woman Movement*, "On Ellen Key and the Woman Movement," The *Forerunner* 4 (February 1913): 35-38.

[85] Gilman, "On Ellen Key," 36.

[86] Charlotte Perkins Gilman, "This 'Superiority,'" *The Forerunner* 2 (April 1911): 126.

also demonstrated the new ideas about motherhood made possible by Darwinian evolution; namely, an emphasis on its physicality, a new appreciation for the body, and more strident demands for female control of reproduction. Gilman and Key were both enthusiastic converts to Darwinian evolution, which powerfully reshaped their ideas about motherhood and reproduction, and both rejected Christian definitions of maternity and the family. Each in her own way also promulgated new ideas about the body – Gilman thought women should be healthier and dress more naturally, as did Key, who added to that an appreciation for women's non-productive sex-drives. Both embraced the physicality of maternity and advocated franker discussion of reproduction as well as greater acceptance of sex education. To maximize bodily health, Gilman suggested that women exercise and discard uncomfortable clothes and corsets that served only to exaggerate their femininity. Key advocated more reverence for the body and the sex instinct as the great engine that drove the evolutionary process.

Neither Key nor Gilman doubted that society needed to be reformulated in order to ensure healthier offspring and evolutionary progress, but they disagreed about how individual women and mothers could contribute to this revolution. To Gilman, well developed women, who were "humans" first and mothers second, offered the most to their children. To Key, women's humanity hinged on motherhood. Whether they thought of women first as humans or as mothers, however, both Gilman and Key agreed that society needed to reorganize the home, relations between men and women, and child rearing to foster evolutionary progress.

Heredity and Free Motherhood

Perhaps the most consequential shift in thinking about maternity prompted by evolution was the idea that mothers should exercise greater autonomy in reproductive decisions, including learning and obeying the laws of heredity. During the final decades of the nineteenth century, years characterized by unprecedented female association and voluntary activity, many suggested that perhaps women could benefit society more by mating wisely than by joining a club. Drs. Monfort Allen and Amelia McGregor explained to readers that if they really wanted to reform society they were better off studying the laws of heredity than volunteering their spare time:

> It is high time that parents should recognize their obligations to understand these sources of hereditary influences better than they do; and mothers in particular -- for if they properly understood them and were governed by their principles, which have for their distinct and only object the elevation of man towards perfection, they would do far more towards perfecting the human race and ridding the world of vice and immorality than all the benevolent and moral reform societies in existence.[87]

With its emphasis on the material essence of the body and the impetus to judge progress in terms of the fitness of offspring, Darwinian evolution prompted a reprioritization of female reform efforts. Paraphrasing Frances Willard, the formidable president of the Woman's Christian Temperance Movement, Katherine M. Peirce wrote in the *Woman's Tribune* that heredity was the most important law of life and the "root" of all reform. "This argument," she explained, "undeniable as it is, finds its inspiration in the popular acceptation of the theory of evolution and bases its premises on the observable phenomena of the physical nature of man."[88] It was no longer enough for women to devote their prayers, time, and mental effort to reform, now they needed to devote their bodies as well.

[87] Allen and McGregor, *The Woman Beautiful*, 47.
[88] Katherine M. Peirce, "Heredity," *The Woman's Tribune*, 24 July 1897.

Previously, Mrs. Alice Lee Moqué explained at the 1897 National Congress of Mothers, it was the "generally accepted theory that parents were merely the unconscious instruments of the Divine Spirit, for the working out of his will, and that the mental and moral attributes of their children, their temperament, health character, and sex were direct decrees of the Infinite, which it was useless for the finite mind to try to comprehend or explain." But evolution had shattered that blind faith in divinity and established reproduction as a field to be studied and understood. "Today we are wiser," Mrs. Moqué declared, "and have learned that Nature is the great exponent of sublime truth and natural law the Creator's text-book. . . In Nature it is law, not chance."[89] To better fulfill their important roles as mothers, Mrs. Moqué advised women to learn these laws and reproduce accordingly.

In light of the broad-based acceptance of evolution, "heredity" became a popular topic of discussion in women's clubs across the political spectrum at the end of the nineteenth century. As Mrs. W. H. Felton explained at the inaugural meeting of the National Congress of Mothers:

> In this Congress of Mothers, as an organization designed for instruction, rises to its full scope and liberty, the door for investigation into hereditary taints and evils will be opened wide at every session, and the work will take a fresh start for usefulness, from the standpoint of motherhood, in relation to its holiest duties and most exalted privileges. [90]

Heredity was important to learn, she exhorted, because, compared to it, all other reform measures were merely palliative. The NCM heeded Felton's call and devoted several meetings to the discussion of heredity.

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[89] Mrs. Alice Lee Moqué, "Reproduction and Natural Law," National Congress of Mothers 1897, 123. Miscellaneous Organizations Collection, Box 14, Folder 8, SSC.

[90] Mrs. W. H. Felton, "Heredity," National Congress of Mothers 1897, 185. Miscellaneous Organizations Collection, Box 14, Folder 8, SSC.

Sorosis, the first professional women's club, and its outgrowth the Association for the Advancement of Women (AAW), also held several meetings in the 1880s and 1890s on the topic of heredity. Dr. Harriette Keating, a practicing physician who chaired Sorosis' committee on science, developed her interest in heredity through her scientific studies and frequently shared her insights about its importance with the other members of the group.[91] For instance, in 1893, the science committee sponsored a meeting around the question, "[w]hat are the great predisposing causes of crime, and what are some of the remedies?" In answer to that question, Dr. Keating delivered a paper entitled "Evolution and Heredity" and three other women spoke on behalf of environmental influences. A lively discussion followed, but "the ladies who spoke on the question were chiefly in favor of the power of heredity."[92]

Women's knowledge of hereditary laws was hazy, as was scientists', and much of what they advocated has been invalidated by subsequent research (including the idea that traits acquired in one's lifetime could be passed on to offspring). Nevertheless, to them, "heredity" connoted a world of healthy, happy children wrought by women's reproductive autonomy and prudent decision making. And they believed they knew enough about heredity to begin agitating for reform. Mrs. Felton acknowledged, "I simply know there is reproduction in plant life and in animal life. I know 'like produces like.'"[93] One didn't need a Ph.D. to see that tall parents tended to have tall children.

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[91] Sorosis collection, box 8, clippings folder, SSC.

[92] 2 October 1892, meeting program, Sorosis Collection, box 5, folder 3, SSC. Reports of the Sorosis Science Committee, Sorosis collection box 7, folder 34, SSC. See also, Blackwell, "Heredity," delivered at the AAW 11th congress, in Chicago, 1883, Sorosis collection, box 5, folder 9, SSC.

[93] Felton, "Heredity," 192.

To women, studying the laws of heredity also indicated their modernism and their ability to keep up with the latest scientific discoveries. Mary Hime Baker included studying the laws of heredity and exercising reproductive control as among the hallmarks of the "New Woman." According to her:

> the new woman decides that the woman ought not to be sacrificed to the mother. . . .The true woman ever glorifies motherhood but condemns heedless maternity. She believes in the right of children to be well born. She studies the laws of health and heredity, and sees as results in the coming years the ideal marriage, ideal parentage, ideal home and ideal nation. [94]

These women emphasized different elements of heredity in their speeches, but what they agreed upon was a new world of planned pregnancies engineered by educated, autonomous mothers.

Women's increasing interest in heredity often made for strange bedfellows. It united women, like Mrs. Moqué, who believed that motherhood was women's special and sacred province, with women, like freethinking Helen Hamilton Gardener, who believed that motherhood needed to be adjusted to better suit women's entry into public and professional life. Another difference between Moqué's interpretation of heredity and Gardener's was their point of emphasis: one focused on the benefits to children while the other focused on the benefits to women. When Gardener addressed the National Congress of Mothers in 1897 she knew that her remarks would stand out from the rest. "I fear that I shall strike a less pleasant note than those who have preceded me, who have so generally dealt with ideal motherhood, who have sung the praise side of the song," she

[94] Mary Hime Baker, "Ethics of the New Woman's Social and Domestic Life," *The Club Woman* III (October 1898): 8.

warned. "My theme is scientific."[95] In this address and in her extensive writing on heredity, Gardener did not paint a romanticized picture of motherhood. Rather, she pointed out that degraded mothers gave birth to feeble children and that most women were not fit to reproduce. Previous generations believed that mothers instinctively knew what was best for their offspring, but recent studies in heredity and other areas convinced Gardener that most women did not know the first thing about being mothers and that those who refused to follow the laws of heredity deserved to reap the consequences.

Gardener was committed to ending the sexual double standard and to convincing men and women to pay more attention to heredity. Before she devoted herself to suffrage, she wrote numerous essays and even a few novels on the topic of heredity.[96] In each work, Gardener rejected the idea that God was in charge of heredity. "Scientific terms and facts of this nature cannot be confounded with metaphysical and religious speculation without hopeless confusion as to ideas, and absolute worthlessness as to the results of the investigation," she explained. "The very foundation principle of Evolution, itself, depends upon the persistence of the laws of hereditary traits, habits and conditions, modified and diversified by environment and by the introduction of other hereditary strains from other lines of ancestry." As for those who did not believe in evolution, Gardener declared that they probably were not smart enough to read her books anyway.[97]

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[95] Helen Hamilton Gardener, "The Moral Responsibility of Women in Heredity," Congress of Mothers 1897, 131. Miscellaneous Organization Collection, box 14, SSC.

[96] See for example, Gardener, *The Facts and Fictions of Life*; Gardener, *Pushed by Unseen Hands* (Boston: Commonwealth Company, 1892); Gardener, *Is this Your Son, My Lord? A Novel* (Boston: Arena Publishing, 1890); Gardener, *Pray You, Sir, Whose Daughter?* (Boston: Arena Publishing, 1892); Gardener, *A Thoughtless Yes* (Boston: Arena Publishing, 1890).

[97] Gardener, *Facts and Fictions of Life*, 10.

Gardener's program for motherhood rested on female education and autonomy. Like Gilman, she insisted that women be free to develop themselves as humans before becoming mothers:

> Up to the present time woman's moral responsibility in heredity has been below the point of zero, for the reason that she has had no voice in her own control nor that of her children. With the present knowledge of heredity she who permits herself to become a mother without having demanded and obtained (1) her own freedom from sex dominion and (2) fair and free conditions of development for herself and her child, will commit a crime against herself, against her child, and against the race.[98]

Here, Gardener interpreted evolutionary theory for feminist ends: uneducated, subject women were not just undeveloped individuals, they were bad mothers who threatened evolutionary progress.

Furthermore, Gardener insisted that men who demanded complete female devotion to maternity violated the laws of nature. "Nowhere else in nature does the male claim all of the other avenues of life as his special sex privileges," she exhorted, "except alone the one which he cannot perform – that of maternity."[99] In no other species was one half of the population subject to the other and prohibited from developing along any lines except reproductive. When she looked at the animal kingdom to better understand the human condition, as evolution instructed, Gardener found female equality and autonomy, which starkly contrasted what she observed around her. Gardener advised women to heed these natural laws and refuse to "allow themselves to be made either the unwilling, or the supine transmitters or creators of a mentally, morally, or physically

[98] Helen Hamilton Gardener, *Plain Talk: A Pamphlet on the Population Question and the Moral Responsibility of Woman in Maternity* (Chicago: G.E. Wilson, 19--): 11-12. HOW.

[99] Ibid., 14.

dwarfed or distorted progeny." After all, she concluded, "[t]he laws of heredity are inflexible as death."[100]

As a result of her studies of heredity, Gardener forged a revolutionary definition of motherhood and began to demand that it be free. She suggested that perhaps a "subject motherhood. . .is responsible to the race for the weak, the deformed, the depraved, the double-dealing, pretense-soaked natures which curse the world with failures, with disease, with war, with insanity and with crime." With characteristic gusto, she concluded, "self-abnegation, subserviency to man, whether he be father, lover, or husband, is the most dangerous theory that can be taught to or forced upon her whose character shall mold the next generation."[101] Subject mothers, because they made poor marital choices and because Gardener believed acquired traits could be passed on, kept "the race from lofty achievement."

Gardener delivered a powerful address about free motherhood at the 1893 World's Columbian Exposition in Chicago. "Woman as an Annex" attacked the idea advanced by many male evolutionists that men were the "race" while woman was "merely an annex to him."[102] Even as Gardener critiqued biased science, however, she looked to science for answers and argued for the autonomy of women and mothers based on evolutionary principles and natural precedent. She observed that sex bias "does not carry . ..below the human animal. Among the scientists and evolutionists, and, indeed, even among the various religious explanations of the sources and cause of things, the

[100] Ibid., 16.
[101] Ibid., 3.
[102] Helen H. Gardener, "Woman as an Annex," speech delivered at the 1893 World's Columbia Exposition, reprinted in *Facts and Fictions of Life*, 129.

male and female of all species of animals, birds and insects come into life and tread its paths together and as equals."[103] To prove her point that to be in accordance with natural and evolutionary law motherhood must be freely chosen, Gardener also drew on insights from the animal kingdom. "Many of the lower animals destroy their young if they are born in captivity," she explained. "They demand that maternity shall be free."[104] For example, she noted that a lioness at a New York zoo had recently killed two of her three cubs.[105] Women, she insinuated, would do well to learn from her example.

Women's rights activists were keen to this distinction between human constructs and natural law, and quick to demand a return to a more natural state of maternity. As Harriot Stanton Blatch explained:

> The mothers of the human species should turn to the animals, and from the busy caretakers, who are below them in most things, learn the simple truths of procreation. Let women but understand the part unenforced maternity has played in evolution of animal life, and their reason will guide them to the true path of race development. Let them note that natural selection has carefully fostered the maternal instinct.[106]

To these women, "natural" meant the world of animals and plants, where reproduction was carried out without male supervision and without societal limitations or conventions. Such an environment would not only be better for mothers, but also for the future of humanity. As Gilman prophesied in *Women and Economics*, "[w]hen the mother of the

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[103] Ibid.
[104] Ibid., 132. For similar arguments, see also Gardener, "Plain Talk to Women," 13-14.
[105] Gardener, "Annex," footnote on 133.
[106] Harriot Stanton Blatch, "Voluntary Motherhood," *The Woman's Tribune*, 28 February 1891, 70.

race is free, we shall have a better world, by the easy right of birth and by the calm, slow, friendly forces of social evolution."[107]

Writing in the *Woman's Tribune*, another author expressed exasperation over men's incessant interference in female reproductive decisions. "Women are capable of working a few things out for themselves," she explained, "especially if they are free to do it. The Mother was evolved by Nature long before the Father became a definite entity, and for him to undertake to regulate her sphere or how she should conduct herself in it, while at the same time, binding her hands so that she is prevented from regulating herself, is the height of presumption and folly."[108] While men warned that female education and careers led to race suicide, these women argued that motherhood was such an ingrained instinct no amount of education could diminish women's desire for children – but unnecessary male interference could. In response to Grant Allen's suggestion that education unfit women for motherhood, Alice Tweedy countered that "[t]he traditional idea that womanhood can be modified in some occult [she mentioned Spencer and Maudsley in a footnote] way by occupation, training, or environment is wholly unscientific and *baneful*." To the contrary, she argued, "[s]tudy of nature leads us to believe that, if the individual be free and supplied with the means of life, there is great

[107] Gilman, *Women and Economics*, 340. For an article based on this strain of Gilman's thought, see Mariana Valverde, "When the Mother of the Race is Free': Race, Reproduction, and Sexuality in First-Wave Feminism," in *Gender Conflicts: New Essays in Women's History*, ed. Franca Iacovetta and Mariana Valverde (Toronto: University of Toronto Press, 1992): 3-26.

[108] "No Need for Men to Worry," *The Woman's Tribune*, 31 August 1907.

probability of the survival of his kind."[109] Their study of evolution showed these women that free motherhood was natural while male dominance was a human construct.

Allen's suggestion that women bear at least four children lest the race die out elicited equally venomous responses. The editors of the *Woman's Standard* wondered, "[m]ust she keep right on reproducing a race of men which turns round and sets its heel upon her neck?" Then, in their "most motherly tones," the editors argued that "[a] race born of enslaved mothers is not fit to exist; let it make room for a better one." Freedom, not coercion and discrimination, was what women needed in order to secure the future of the race. Furthermore, the editors continued, in order for women to have at least four children, they needed far better prospects for husbands. In the meantime, they advised women to continue with their education and reform work.[110]

Despite its radical potential, free motherhood appealed to women of many political and religious affiliations, and a broad spectrum of women used evolutionary principles to argue for it.[111] Women made arguments for free motherhood to assert their preeminence in the home, to reevaluate domestic responsibilities, and to demand greater female autonomy in reproductive decisions. Free motherhood certainly fit into the rubric of "voluntary motherhood," but it is important to note the extent to which adherents drew

[109] Alice B. Tweedy, "Is Education Opposed to Motherhood?" PSM 36 (April 1890): 756, 760. See also, Florence Guerin Tuttle, *The Awakening of Woman*. Tuttle challenged the threat of race suicide, arguing instead that smaller families heralded racial advancement (84).

[110] "Biology versus Nature," *The Woman's Standard* 4.5 (January 1890): 4-5.

[111] See also, Lucinda B. Chandler, "Enlightened Motherhood—How Attainable;" and Mary Hime Baker, "Ethics of the New Woman's Social and Domestic Life." Chandler argued that the phrase "she who rocks the cradle rules the world" was true only insofar as she controlled the conditions under which the cradle was rocked. See also, Sophia Almon Hensley, *Woman and the Race* by Gordon Hart (pseudonym) (Westwood: Ariel Press, 1907). History of Women Collection, SSC and Schlesinger (HOW).

on evolutionary insights and principles.[112] Rather than making claims about women's inherent purity, these authors used examples from the animal kingdom to support their demands for a more natural sexuality. Furthermore, they did not argue that women's maternity necessarily led them to be more moral and better behaved, but that maternity was a powerful evolutionary force that needed to operate in accordance with natural, not church or man-made, law. In some ways, of course, arguments for free motherhood defined women by their maternal potential, but in another vital sense they offered women a new way to think about their bodies and themselves, in relation to nature and free from church or legal mandates. Thus, evolutionary discourse enabled forward-thinking women to take ownership of their bodies and provided a scientific rationale for female reproductive autonomy.

By the 1890s, women's growing demands for more authority in reproductive decisions grew to include an interest in eugenics, the practice of selective breeding. Historian Carl Degler has argued that the decline of Lamarckianism – the idea that acquired traits could be passed on – in the 1890s fueled the eugenics movement because people, especially women, sought to exert control over heredity, which they now understood could not be done by changing environmental factors.[113] Darwin had explained sexual selection as an unconscious process, but it was a short step from the scientific study of human sexuality to prescribing selective human mating. Much of Darwin's evidence for inheritance and heredity came from animal breeders, and it was easy

[112] As Linda Gordon has established, voluntary motherhood was a popular concept among women in the 1870s, but she and others have not fully investigated the relationship between evolutionary theory, voluntary motherhood, and the later feminist eugenics movement. See, Linda Gordon, *The Moral Property of Women.* Gordon discusses feminist eugenics on pages 80-85.

[113] Carl Degler, *In Search of Human Nature: The Decline and Revival of Darwinism in American Social Thought* (New York: Oxford University Press, 1991), 24. Gordon makes a similar argument in *Moral Property*, 84.

for his readers to begin thinking about how they might direct their own evolution by establishing principles or laws to govern who mated with whom. Darwin's cousin Francis Galton coined the term "eugenics" in 1882, and Darwin himself ended the *Descent* on a eugenic note, suggesting that men and women should pay at least as much attention to their marriage choices as they did to the pedigree of their horses, cattle, and dogs:

> Man scans with scrupulous care the character and pedigree of his horses, cattle, and dogs before he matches them; but when he comes to his own marriage he rarely, or never, takes any such care. . . .Both sexes ought to refrain from marriage if in any marked degree inferior in body or mind; but such hopes are Utopian and will never be even partially realized until the laws of inheritance are thoroughly known. All do good service who aid toward this end. [114]

Of course, Darwin was hardly the first person to hint that humans could improve future generations by judicious mate choices (John Humphrey Noyes and Robert Owen, for example, founded antebellum utopian communities on similar principles), but the widespread acceptance of his evolutionary theories increased the scientific and popular import of eugenic ideas and provided the intellectual climate in which they could flourish. As women learned more and more about heredity, they often began to think in eugenic terms.

While the history of eugenics has been expertly documented by Daniel Kevles, Diane Paul, Wendy Kline, and others, most previous studies have focused on its twentieth century iterations and, rightly, their racist and xenophobic implications and implementations.[115] Negative eugenics, when the state decided who was unfit to mate,

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[114] Darwin, *Descent* II, 402-403.

[115] For histories of eugenics, see Daniel Kevles, *In the Name of Eugenics: Genetics and the Uses of Human Heredity* (New York: Alfred A. Knopf, 1985). Kevles discusses the impact of Darwinian theory on the movement but focuses on natural selection; he does not mention the broader changes in thinking about sex prompted by sexual selection or *The Descent of Man.* See also, Wendy Kline, *Building a Better Race: Gender, Sexuality, and Eugenics from the Turn of Century to the Baby Boom* (Berkeley: University of California Press, 2001). Kline focuses mainly on the role of gender in the twentieth century eugenics

has been the most frequently studied aspect of eugenics, largely because of the deplorable ways it was practiced in the U.S., especially against people of color, and in Nazi Germany. However, negative eugenics was just one branch of the tree; evolutionary thinking spurred all sorts of new ideas about proper sexual relationships, including but not limited to state-sponsored eugenics.

Prior to the institutionalization of the American eugenics movement, eugenic ideas were a radical and powerful tool frequently employed by feminists and other women to exert control over reproduction.[116] Women claimed that male licentiousness was polluting the race, that men made poor reproductive decisions, and that babies born to degraded or unhappy women did not stand a good chance of evolutionary success. An announcement about the formation of the *Journal of Eugenics*, the successor to the freethought publication *Lucifer the Light-bearer*, epitomized this line of argument. The new journal would promote the idea that:

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movement; Diane B. Paul, *Controlling Human Heredity, 1865 to the Present*. Paul presents an overview of eugenics ideology and discusses *The Descent of Man* in chapter 3, "Evolutionary Anxieties." She explains, "Darwin at most flirted with eugenics. But his work provided the context that made Galton's views on heredity compelling" (36).

[116] For a recent discussion of feminist eugenics, see Susan Rensing's "Feminist Eugenics" which addresses the role of women and gender in the founding years of the movement. Rensing argues that in the 19th century eugenics became "an answer to the 'woman question' and a program for scientific sex reform" (9). See also, Gordon, *Moral Property*, 80-85. See also Joanne E. Passet, *Sex Radicals and the Quest for Women's Equality*, Women in American History Series, ed. Anne Firor Scott, Nancy A. Hewitt, and Stephanie Shaw (Urbana: University of Illinois Press, 2003); Hal D. Sears, *The Sex Radicals: Free Love in High Victorian America* (Lawrence: The Regents Press of Kansas, 1977); and David Stack, *The First Darwinian Left: Socialism and Darwinism, 1859-1914* (Cheltenham: New Clarion Press, 2003). Many pioneering works about homosexuality also reference Darwin and *The Descent of Man*. See, for example, the works of Edward Carpenter (namely, *The Intermediate Sex*, 1908) and Havelock Ellis. In these books, there seems to be some sense that sexuality, too, was subject to gradual change over time and that at present it was in flux. See also Francis Buzzacott and Mary Isabel Wymore, *Bi-Sexual Man, or Evolution of the Sexes, Scientific Edition* (Chicago: M.A. Donahue and Company, 1912). They argued that the sexes evolved from a single bi-sexual organism, that Darwin and Huxley put forth this idea but had not pursued it, and that these bi-sexual people were superior because they could take part in all life processes.

> the evolution of the human race lies through improved conditions in the relations of the sexes. The cardinal doctrine of this is that woman must be the sole person to decide when and under what conditions she will give birth to children. This means that woman must have control of her own person in wedlock as well as out of it.[117]

Moses Harman, the freethinking, free love advocate who published both *Lucifer* and the eugenic journal, tied women's equality, egalitarian relations between men and women, and increased sexual freedom to evolutionary progress. Eugenics, especially as articulated by feminists, contained the seeds of a radical version of motherhood based on evolutionary principles: a strong, healthy woman, unhindered by corsets or fripperies, choosing when and with whom to have sex, and enjoying a fit, pregnancy and labor.[118]

Darwinian evolution in general and *The Descent of Man* in particular facilitated many new ideas about sex and reproduction, above and beyond those advocated within the organized eugenics movements. Furthermore, these ideas about human control of reproduction were advocated by voices across the political spectrum. In the hands of feminists and other social radicals, eugenic arguments served as powerful critiques of existing patterns of marriage, sex, and domestic labor.

This new approach to reproduction inspired contradictory demands that reached their apex in debates about birth control, the logical culmination of evolutionary arguments for marriage reform and greater female reproductive autonomy. Even though

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[117] "Eugenics," *Woman's Tribune*, 13 July 1907, 50. A thorough discussion of feminist eugenics is beyond the scope of this project. Many feminists who had been influenced by evolution, however, did consider themselves eugenic feminists. This movement was especially popular in Great Britain. See for example, the writings of Karl Pearson, Caleb Saleeby, Frances Swiney, and Marie Stopes.

[118] Gordon argues that eugenic feminists successfully tried to emphasize the "social and cultural" aspects of motherhood, not its "biological" ones (*Moral Property* 83). But a certain evolutionary understanding of biology and the body underscored feminist eugenic arguments and made them possible in the first place. She also persuasively contends that eugenic arguments ultimately benefited antifeminists more than feminists.

Darwin opposed artificial checks to population on the grounds that they interfered with natural selection, many among the next generation of evolutionists embraced birth control. Patrick Geddes and J. Arthur Thomson, authors of *The Evolution of Sex* (1890), advocated Neo-Malthusianism, or "the use of artificial preventive checks to fertilization" to ensure the future progress of the race.[119] Like many other neo-Malthusians, Geddes and Thomson believed that "quality" not "quantity" of offspring was most important from an evolutionary perspective. "The future is not to the most numerous populations, but to the most individuated," declared Geddes and Thomson. To accomplish this goal, Geddes and Thomson demanded a "new ethic of the sexes." Central to this new sexual ethic was the "increasing education and civism of women, --in fact, an economic of the sexes very different from that nowadays so common."[120] Geddes and Thomson dismissed religious concerns about the intervention of science in human mating, arguing instead that such interventions would lead to a brighter, healthier future:

> The idea of the biological control of life, which had its first theoretical basis in Darwinism, found epoch-making illustration in the achievements of Pasteur. He showed that the days of folded hands and resignation are over; it is Man's prerogative to use science so that he may enter more and more fully into possession of his kingdom.[121]

Clearly, part of Man's kingdom belonged to a new type of woman, and part of this new evolutionary utopia would be greater female reproductive autonomy, including the use of birth control.

[119] Geddes and Thomson, *The Evolution of Sex*, 292.
[120] Ibid., 295-297.
[121] Ibid., 307.

Geddes and Thomson were hardly alone in making the connection between evolutionary science and birth control. For one thing, both movements shared a common intellectual ancestor in Thomas Malthus who first postulated that population growth was inversely related to individual survival. During the famous "Fruits of Philosophy" trial in England in 1877, the first case to charge the publishers of a birth control pamphlet with obscenity, the defendants, Annie Besant and Charles Bradlaugh, asked to call Charles Darwin to the stand and to read excerpts from his works. The defendants felt confident that his theories, above all others, provided irrefutable evidence for the scientific basis of their cause.[122] Darwin politely refused to testify on account of ill health and the fact that he disagreed with artificial checks to fertilization, but his theories continued to influence the birth control movements in England and the U.S.[123] When she determined to launch the first large-scale campaign for birth control in America., Margaret Sanger, for example, read Darwin, studied the "Fruits of Philosophy" trial in earnest, and appointed Darwinian sexologist Havelock Ellis as her informal tutor. The ultimate success of Sanger's influential birth control campaign owed much to the Darwinian revolution and the new thinking about gender and sex that it inspired.[124]

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[122] Unpublished excerpt from *The Life of Annie Besant*, Margaret Sanger Papers, Series III, Box 26, SSC.

[123] See for example, *The Malthusian Handbook* (London: W.H. Reynolds, 1900), which extensively quoted the *Origin of Species*, RBMSCL. For a secondary source on the British Malthusian League, see Rosanna Ledbetter, *A History of the Malthusian League, 1877-1927* (Columbus: Ohio State University Press, 1976.)

[124] This statement is based on extensive research in the Margaret Sanger papers at the Sophia Smith Collection, Smith College, Northampton, MA. An extended discussion of the Darwinian roots of the birth control movement is beyond the scope of this dissertation, but it is part of my larger project and will be included in future work.

Conclusions

In the second half of the nineteenth century, evolution cast doubt on the existence of Eve's curse, focused attention on the physical aspects of motherhood, and prioritized the fitness of offspring in this life, not the afterlife, as the basis by which to judge maternal success. These new ideas encouraged many Americans to reevaluate their beliefs about reproduction and altered popular thinking about motherhood. While Americans applied evolutionary principles to motherhood in distinct and often contradictory ways, all versions of the evolutionary mother starkly contrasted Eve and other traditional beliefs about maternity. The new, Darwinian worldview defined motherhood as predominantly physical and invested in the future of the species, as opposed to spiritual and invested in the production of souls. These evolutionary ideas about maternity led to demands for fit pregnancy, more equitable distribution of domestic labor, and greater female control of reproduction, including birth control, ideas that came to fruition in the twentieth century.

Conclusion

In the final decades of the nineteenth century, biblical and scientific gender paradigms clashed, blended, and in some cases reinforced each other in the debates about the "woman question." Characterized by their multivalence and authority, both evolutionary rhetoric and biblical verses were called upon as evidence by supporters and opponents of women's rights. Ultimately, however, evolutionary science challenged and in many cases displaced religion as the arena in which questions of gender difference could be resolved. Charles Darwin's *The Descent of Man, and Selection in Relation to Sex* (1871) was a defining factor in this transition. According to Darwin, reproduction drove the evolutionary process and sex differentiation expedited human development. As a result, popular and scientific thinking about gender focused on the origins and biology of gender difference, human's relationship to animals, the science of sexual attraction, the physical basis of maternity, and the mechanisms of heredity, all of which were only hazily understood at that time. Despite the gaps in scientific knowledge, feminists and anti-feminists alike increasingly incorporated scientific arguments as evidence for their ideas about proper gendered behavior.

Framing the "woman question" in terms of evolution allowed opponents of female advancement to call upon "nature" as an ally, couching female inferiority as a biological inevitability and evolutionary necessity. Such traditional views on the proper relations of the sexes aligned scientists with clergymen and helped smooth over their differing views on the origin of life. Evolutionary thought also provided opponents of women's rights with a seemingly scientific platform for racism and xenophobia by

allowing them to talk about the encroachment of other races and ethnicities in terms of "civilization" and "advancement," rather than "race" and "class." Scientific and medical leaders implored white women to abandon their efforts to enter the male spheres of higher education and the professions and, instead, encouraged them to prove their loyalty to the race by having as many babies as possible, thereby assuring the ascendancy of the white middle class.

Of course, racism was hardly limited to opponents of women's rights. By explaining human development in terms of a racial hierarchy that progressed from savage (dark) to civilized (white), social evolutionary discourse also encouraged racial thinking within the nineteenth-century women's movement. Evolutionists and anthropologists generally explained that women and darker races were simply less evolved than white men. Instead of questioning the underlying logic of such assumptions, many women's rights leaders – especially those who were the most influenced by evolution – accepted the evolutionary ladder but disputed the step on which they had been placed. After 1870, white women's rights leaders, including Elizabeth Cady Stanton, Helen Hamilton Gardener, and Charlotte Perkins Gilman, focused on proving that they were more like their white male peers than women of color. In the process, they distanced themselves from non-white and lower-class women, and made many pronouncements and organizational decisions that haunt the U.S. women's movement to this day.

Darwin's theories also reframed debates about the "woman question" by encouraging proponents and opponents of women's rights to think about gender in terms of reproduction, sexual selection, and human's relationship with animals. Darwin did

more than offer conservatives an evolutionary explanation for female inferiority. His theories challenged the longstanding biblical justifications of gender difference as explained in the Adam and Eve myth and remodeled the very ways in which men and women thought about gender and sex. Many Americans who were keen on revolutionizing gender relations also embraced Darwinian evolution.

Furthermore, evolution impressed upon women the importance of critical thought and made them more comfortable breaking with traditions. This influence can be seen especially in the connections between feminists and the freethought movement at the end of the nineteenth century. Within the freethought movement, feminists like Elizabeth Cady Stanton found receptive audiences and venues for ideas that had not been welcomed in mainstream women's rights circles. Darwin's challenge to biblical literalism, together with the boost in popularity evolution afforded freethought, prompted many women to question the role of religion in the movement. Prior to Darwin, most women came to "women's rights" through Christianity and their church-related activism; post-Darwin, feminism has largely been considered antithetical to organized religion and its prescriptions for gender and family life. Evolutionary discourse provided a vehicle for the secularization of feminist thought and a catalyst for its divorce from both the Bible and natural rights rhetoric.

The widespread acceptance of evolutionary doctrine also led Americans to seek answers to the "woman question" in the tree of life. Troubled by the idea that men were closely related to apes, many doctors and scientists looked for evidence of male superiority in nature. Within the animal kingdom, they found not only many examples of

male bravery and dominance, but also evidence suggesting that male superiority went hand-in-hand with evolutionary advancement. Of course, different species organized their labor in different ways, but, ultimately, evolutionists believed it was human's gendered differentiation of labor that propelled their evolution. In their view, what separated the men from the baboons (and the savages) was patriarchy. Women, on the other hand, found affirmation and inspiration in the variety of gender relations, sexual expression, and power structures in the animal kingdom. They compared animal relationships and labor patterns with human ones and found humans' wanting.

Opponents and proponents of women's rights looked to the animal kingdom to, essentially, answer one question: were females fundamentally the same as males or fundamentally different? On this, they agreed. Women were fundamentally different from men. They also generally concurred that sexual differentiation was a hallmark of progress. They disagreed, however, about whether or not women's increased participation in society would erode this differentiation. They also disagreed about whether female inferiority was permanent and natural, or whether it was temporary and cultural. Women charged male scientists with unfairly dismissing female contributions to evolutionary advancement; pointed out that human constructs, not natural disability, kept them from achieving eminence; and called for a reevaluation of traits that society valued most.

Late nineteenth-century women's rights advocates stressed female equivalence, not equality, to men and argued that evolution required both male and female contributions in order to advance. This emphasis on biologically-based complementarity

significantly altered women's rights rhetoric. After the general acceptance of evolutionary theory, women ceased demanding literal equality in favor of functional equivalence. Feminist demands based on equivalence accepted that there were inherent mental and physical distinctions between the sexes but argued that the current system dismissed women's contributions and robbed them of opportunities. They claimed that increasing female participation in all realms of society was not only good for women but also necessary for evolutionary progress.

On first glace, nineteenth-century scientific theories of gender did focus on establishing women's "natural" inferiority; however, the rocky transition from biblical to scientific gender roles provided some positive benefits for women. Namely, it had the potential to render obsolete the so-called lessons of the Garden of Eden and free women from having to answer for Eve's sins and abide by her curse. As popular acceptance of evolution eroded faith in biblical literalism, religious justifications for women's rights shifted from literal biblical exegesis to more general statements that the teachings of Jesus support greater freedom for women. Women continued to find powerful inspiration in the Bible, of course, but, much like natural rights, organized religion did not create an environment open to feminist intervention. Science did.

Thus, evolution's influence on women's rights was not limited to reducing the effectiveness of biblical exegesis and enlightenment rhetoric; evolutionary science also provided feminists with powerful new tools and ways of thinking about the world. First, evolutionary theory introduced women to the wide variety of gender and sex relationships among our relatives in the animal kingdom, shedding new light on the human condition.

Most important, however, women embraced the scientific method and demanded that pronouncements about gender be empirically sound. They turned to science because they trusted its methods and because they could participate in it themselves by conducting their own experiments or improving upon the work of others. In particular, they welcomed the opportunity to contribute the evidence of their own experiences to the debates on female education, menstruation, and other pressing questions of gender difference.

Proponents of women's rights were also attracted to evolutionary science because, unlike biblical law, it was easily amendable and open to new ideas. While women rejected many of Darwin's specific pronouncements about gender, they trusted his methods. Women were confident that if evolutionists faithfully applied the scientific method to the "woman question," women would be found to be equivalent, not inferior, to men. Compared to a religion whose female role models included a virgin mother and an inquisitive woman responsible for the fall of man, women found evolution to be, at least potentially, a more value-neutral thought system.

At the same time, Darwin's theory of sexual selection inspired a generation of scientists to study sex and sexual attraction. By explaining human reproduction in terms of animal mating and by giving it such importance in the evolution scheme, Darwin simultaneously made sex a vital area of study and helped strip it of taboo. In the flurry of scientific studies that followed the *Descent,* scientists and laypeople alike began to think about sex in a new, scientific way, inaugurating the field of sexology and, later, psychoanalysis. Understanding the scientific laws governing sex and attraction inspired

some to demand that sex, too, be subject to rational human control. Men and women began to apply aspects of the theory of sexual selection to their own lives. Courtship experts encouraged people to mate based on physical attraction. Since men most often did the selecting, this increased the social and cultural importance of female beauty, especially as evidenced in large breasts and a lack of facial hair, and tended to define women in terms of their reproductive function. On the other hand, those interested in gender reform seized on Darwin's assertion that in all animals except humans females did the choosing. Feminist demands for marriage reform and the restoration of female mate choice drew heavily on Darwin, as did new thinking about motherhood.

By refuting the idea that women had been cursed by God and by prioritizing reproduction as the most important human activity, Darwin opened up new discussions about pregnancy and maternity. Rather than accept pregnancy as a debilitating disease, Darwinian feminists instead looked to the animal kingdom and saw examples of healthy, natural pregnancy. As a result, many women began to demand that pregnancy no longer be defined as a disease and suggested that it might instead be evidence of female superiority. Observing the animal kingdom also shed light on the division of domestic labor. If male spiders and birds helped out around the house, shouldn't men? Finally, since mothers played the integral role in the future health of offspring, many women began to learn about heredity and to insist that mothers have the final say in all reproductive decisions.

Previous scholars have generally overlooked the gendered ramifications of evolutionary discourse. Darwin's contemporaries, however, immediately interpreted

evolution in terms of gender and sex and applied his theory of sexual selection to daily life. Darwin prompted Americans to think about sex and gender in terms of nature and evolution, a change which powerfully shaped twentieth-century developments including the growth of sexology, the widespread acceptance of birth control, and the secularization of feminist thought. Looking at gender, evolutionary theory, and religion in concert not only helps us better understand the construction of gender and the development of American feminist thought, especially its troubled relationships with religion and science, it also enriches our understanding of the American reception of Darwin, the ongoing controversies over evolution, and the science of gender.

Current debates about the biology of gender frequently draw on arguments Darwin presented in *The Descent of Man*. In January 2005, former Harvard President Lawrence Summers made international headlines when he speculated that one of the reasons why there are far fewer women than men in high-level positions was that men were biologically predisposed to excel, particularly in math and science-related fields. Summers referred to this phenomenon as "different availability of aptitude at the high end" or "differing variances." Simply put, men were more likely than women to be found at both the very top and the very bottom of the intellectual spectrum. For evidence, he briefly mentioned a study of the top 5% of twelfth graders which found that boys were more likely than girls to score several standard deviations away from the norm on standardized tests. Summers claimed that, much like physical differences, these variables in aptitude could not be explained by culture:

> It does appear that on many, many different human attributes-height, weight, propensity for criminality, overall IQ, mathematical ability, scientific ability –

> there is relatively clear evidence that whatever the difference in means. . . there is a difference in the standard deviation, and variability of a male and a female population. And that is true with respect to attributes that are and are not plausibly, culturally determined.[1]

According to this logic, men were more variable, in a number of ways including intelligence, than women because evolution had inherently predisposed them to be so.

Summers' remarks set off a maelstrom of controversy, which was one of the factors in his subsequent resignation, though the larger questions he raised about the biological, and potentially gendered, basis of intelligence remain unanswered.[2] What struck me the most about the responses to Summers' remarks, however, was that no one mentioned that his comments sounded a lot like the theory of greater male variability popularized by Darwin's *The Descent of Man, and Selection in Relation to Sex* (1871). What Summers called "differing variances," his predecessors referred to as "greater male variability." The theory of greater male variability was not extinguished by the pioneering work of Helen Bradford Thompson and Leta Stetter Hollingworth. Rather, it has been revived in new and creative ways since the 1970's.[3] Like their nineteenth-century ancestors, more recent studies frequently point to women's maternity as either a compensatory or a causal agent for their lack of mental variability. Thus, the connection

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[1] Lawrence Summers, "Remarks at NBER Conference on Diversifying the Science and Engineering Workforce," Cambridge, Massachusetts, 14 January 2005. Prior to Summers' resignation on June 30, 2006, the speech was available through the Office of the President, Harvard University, http://www.president.harvard.edu/speeches/2005/nber.html.

[2] In light of the controversy surrounding Summers' remarks, on May 15, 2005, Harvard University's Mind/Brain/Behavior Interfaculty Initiative sponsored a debate between professors Steven Pinker and Elizabeth Spelke on the "Science of Gender and Science." Transcripts, as well as audio and video footage of these debates are available on-line at, http://www.edge.org/3rd_culture/debate05/debate05_index.html. See also, Margaret Talbot, "The Baby Lab," *The New Yorker* 82, 4 September 2006, 90-101, for an in-depth look at Spelke's pioneering studies of gender differences among infants (she does not find many).

[3] For more information about studies of greater male variability (and male intellectual superiority in general) since 1970, see Anne Fausto-Sterling, *Myths of Gender*, 13-60.

between women's brains, their intellectual capacity, and their maternal functions endures – in popular imagination, if not in fact.[4]

Just as scientists and educators today attempt to define the exact parameters of sex differences in mind, so, too, are more and more applying evolutionary principles to sexuality and the body. The field of evolutionary psychology, for example, exists largely to shed light on vexing questions such as, why do we pick the mates we do? Is sexual violence an ingrained evolutionary response? Can humans be monogamous? While evolutionary psychology is controversial within some circles, it is hard to deny the appeal of seeking the answers to questions of gender and sex in evolutionary science.[5]

Applying Darwinian notions to dating has also trickled down to popular culture and advice books. A recent blurb in the celebrity tabloid *Us Weekly* quoted an evolutionary psychologist who claimed that women find older men attractive "because

[4] For additional examples of more recent work on male and female brains, see Deborah Blum, *Sex on the Brain: The Biological Differences Between Men and Women* (New York: Penguin, 1997) and Louann Brizendine, *The Female Brain* (New York: Morgan Books, 2006). Both argue that there are in fact structural, hormonal, and evolutionary differences in male and female brains that, among other things, account for stereotypical differences between men and women. The idea that Darwinism also supports biologically determined roles for men and women (beyond just brain differences) is also frequently debated. Some argue that evolution proves women are naturally more nurturing, men more competitive, while others argue that evolution instead establishes that there is a wide variety of gender and sex patterns found throughout the animal kingdom. See, for example, Hrdy, *The Woman that Never Evolved,* and *Mother Nature: A History of Mothers, Infants, and Natural Selection* (New York: Pantheon Books, 1999) and Meredith Small, *Female Choices: The Sexual Behavior of Female Primates* (Ithaca: Cornell University Press, 1993). In 2006, the *New York Times* devoted an op-ed page to debate on this very issue, see, David Brooks, "The Year of Domesticity," and Olivia Judson, "Why I am Happy I Evolved," *New York Times,* 1 January 2006.

[5] Among the most popular and influential works in evolutionary psychology that explicitly address questions of evolution, gender, and sex are: David M. Buss, *The Evolution of Desire: Strategies of Human Mating,* revised and expanded edition (New York: Basic Books, 2003); David M. Buss and Neil M. Malamuth, *Sex, Power, and Conflict: Evolutionary and Feminist Perspectives* (New York: Oxford University Press, 1996); and Robert Wright, *The Moral Animal: Why We Are the Way We Are: The New Science of Evolutionary Psychology* (New York: Pantheon, 1994). See also, Nancy Etcoff, *Survival of the Prettiest,* which argues that female beauty does indeed serve important evolutionary purposes. For a critique of evolutionary psychology, see Hilary Rose and Steven Rose, ed., *Alas Poor Darwin: Arguments Against Evolutionary Psychology* (New York: Harmony Books, 2000).

women value status and resources in a mate;" the implicit converse, of course, is that men are naturally inclined to seek younger, more fertile mates.[6] Similarly, ABC news reported on a popular matchmaking program in New York City that purports to rely on Darwinian principles. Entitled "Natural Selection," these speed-dating events pair "rich guys" with "hot girls." To enter the competition, men need to establish their wealth on a sliding scale based on age (those over thirty have to make at least $500,000) and women need to submit five photos.[7] Darwinian language and principles continue permeate our culture, especially when it comes to gender and sex.

Furthermore, gender, religion, and evolutionary science remain tightly interwoven in the controversies over whether or not evolution should be taught in public schools. Indeed, gender remains a key point of contention between evolutionists and adherents of creationism and intelligent design. Some evangelical opponents of evolution argue that the theory sullies and degrades womanhood by focusing so much on reproduction; others insist on the centrality of Adam and Eve as models of God's plan for heterosexual relationships. Interestingly, however, a group of conservatives has recently begun to argue that Darwinian evolution supports traditional gender roles for men and women, among other conservative priorities. Thus, they suggest that perhaps those on the right of the political and religious spectrums should embrace evolution rather than contest it. Adherents to this line of thought point to the many works in evolutionary psychology that

[6] Aimee Agresti, "Do Men Age Better than Women?" *US Weekly*, 16 October 2006, 99. This blurb was part of pictorial essay entitled, "Are They Sexier Younger or Older?" which featured male movie stars including Brad Pitt and George Clooney.

[7] Lauren Moraski, "His Money + Her Looks = a Match," http://abcnews.go.com/Business/FunMoney/story?id=2820318&page=1. Accessed on 26 January 2006.

naturalize the traditional family and patriarchy.[8] The prospect of biologically determined gender roles implicit in a Darwinian worldview appeals to these conservatives, especially in the age of gay marriage, advancements in reproductive technology, and greater acceptance of the idea that gender is not a fixed category. Feminists and other social progressives interested in countering such claims would do well to remember their turn-of-the-twentieth-century predecessors who also saw in Darwinism the potential to revolutionize traditional ideas about gender and sex in order to allow for greater female reproductive autonomy, the equitable distribution of domestic labor, and increased appreciation of all the diversity found in the animal and plant kingdoms, including among humans.[9]

[8] For a review of this movement and many of its principal texts, see, Patricia Cohen, "A Split Emerges as Conservatives Discuss Darwin," *The New York Times*, 5 May 2007.

[9] For a recent work in this vein, see, Joan Roughgarden, *Evolution's Rainbow: Diversity, Gender, and Sexuality in Nature and People* (Berkeley: University of California Press, 2004). See also Levine, *Darwin Loves You*. Levine suggests that "one might make a case for the sexist Darwin as a kind of ideological hero in spite of himself" because if one follows sexual selection to its logical conclusions "it might very well imply the intellectual superiority of women" (200-201).

Tabular View of Equations in Organic Nature.

The Asexual Plane.

A given amount of growth anywhere = The same amount of growth everywhere.

Whether the result be large or small aggregates, the equation remains unchanged.

The Sexual Plane.

Males.		Females.

PLANTS.

Stamens and their Products = Pistils and their Products.

INSECTS.

± Structure,		± Structure,
— Size,		+ Size,
+ Color,		— Color,
+ Activity,	=	— Activity,
— Products,		+ Products,
+ Sexual Love,		— Sexual Love,
(wanting)		± Parental Love.

Figure 1

FISHES.

Males.		*Females.*
± Structure,		± Structure,
— Size,		+ Size,
+ Color,		— Color,
+ Activity,	=	— Activity,
— Products,		+ Products,
± Nurture,		— Nurture,
+ Sexual Love,		— Sexual Love.
± Parental Love,		(wanting)

CETACEA.

— Structure,		+ Structure,
± Size,		± Size,
+ Strength,		— Strength,
+ Activity,	=	— Activity,
— Products,		+ Products,
— Nurture,		+ Nurture,
+ Sexual Love,		— Sexual Love,
— Parental Love,		+ Parental Love.

BIRDS.

± Structure,		+ Structure,
+ Size,		— Size,
+ Color,		— Color,
+ Ornaments,		— Ornaments,
+ Activity,	=	— Activity,
— Products,		+ Products,
— Nurture,		+ Nurture,
+ Pugnacity,		— Pugnacity,
+ Sexual Love,		— Sexual Love,
— Parental Love,		+ Parental Love.

Figure 2

HERBIVORA.

Males.		*Females.*
— Structure,		+ Structure,
+ Size,		— Size,
+ Color,		— Color,
+ Appendages,		— Appendages,
+ Strength,		— Strength,
+ Activity,	=	— Activity,
— Products,		+ Products,
(wanting)		± Nurture,
+ Pugnacity,		— Pugnacity,
+ Sexual Love,		— Sexual Love,
(wanting)		± Parental Love.

CARNIVORA.

— Structure,		+ Structure,
+ Size,		— Size,
+ Ornaments,		— Ornaments,
+ Strength,		— Strength,
+ Activity,		— Activity,
— Products,	=	+ Products,
— Direct Nurture,		+ Direct Nurture,
+ Indirect Nurture,		— Indirect Nurture,
+ Pugnacity,		— Pugnacity,
+ Sexual Love,		— Sexual Love,
— Parental Love,		+ Parental Love.

Figure 3

MAN.

Males.		*Females.*
— Structure,		+ Structure,
+ Size,		— Size,
+ Strength,		— Strength,
+ Amount of Activity,		— Amount of Activity,
— Rate of Activity,		+ Rate of Activity,
+ Amount of Circulation,		— Amount of Circulation,
— Rate of Circulation,		+ Rate of Circulation,
— Endurance,		+ Endurance,
— Products,		+ Products,
— Direct Nurture,	=	+ Direct Nurture,
+ Indirect Nurture,		— Indirect Nurture,
+ Sexual Love,		— Sexual Love,
± Parental Love,		+ Parental Love,
+ Reasoning Powers,		— Reasoning Powers,
— Direct Insight of Facts,		+ Direct Insight of Facts,
— Direct Insight of Relations,		+ Direct Insight of Relations,
+ Thought,		± Thought,
± Feeling,		± Feeling,
± Moral Powers,		± Moral Powers.

Result in every Species.

The Females = The Males.

Comprehensive Result.

Sex = Sex.

Or,

Organic Equilibrium in Physiological and Psychological Equivalence of the Sexes.

Figure 4

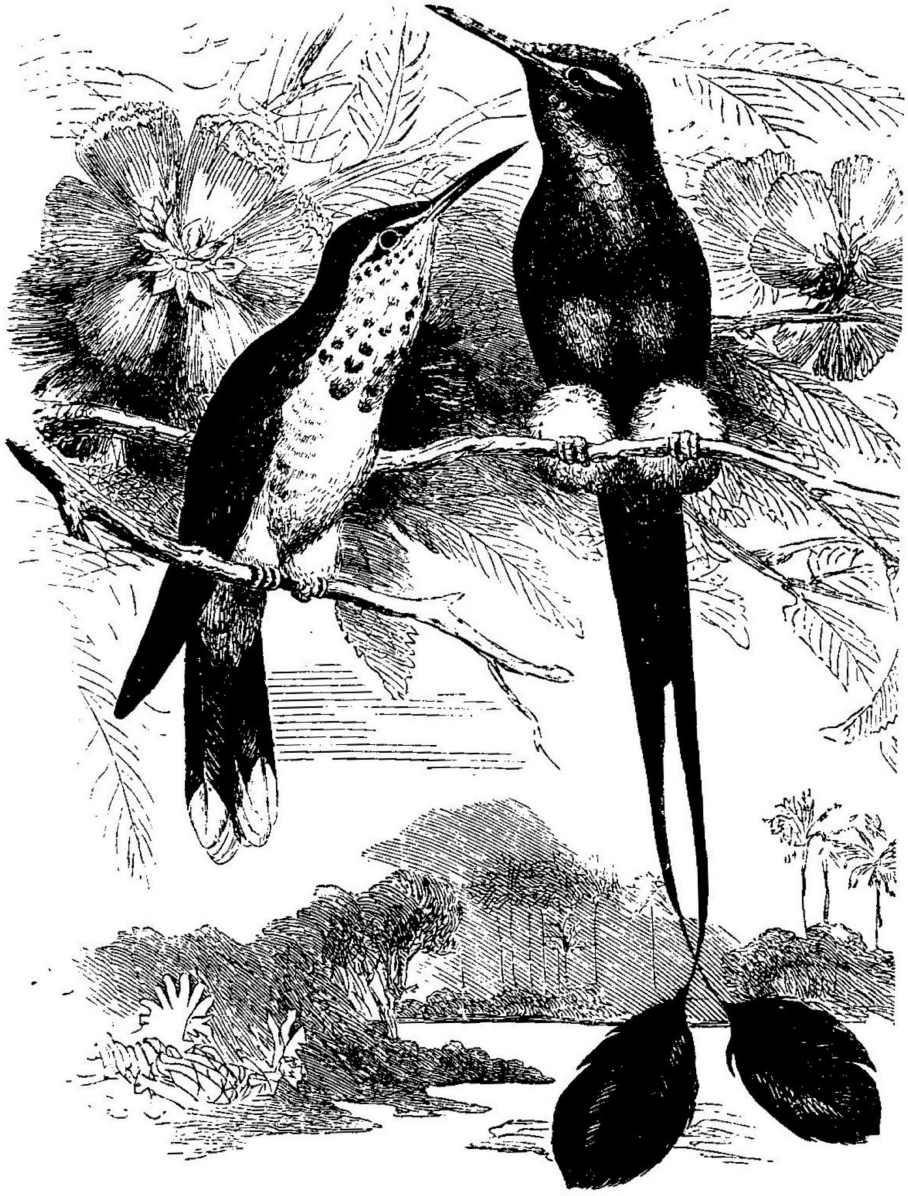

Figure 5

Figure 6

A LOGICAL REFUTATION OF MR. DARWIN'S THEORY.

JACK (*who has been reading passages from the "Descent of Man" to the Wife whom he adores, but loves to tease*). "So you see, Mary, Baby is descended from a Hairy Quadruped with Pointed Ears and a Tail. We *all* are!"
MARY. "Speak for *yourself*, Jack! *I'm* not descended from any thing of the kind, I beg to say; and Baby takes after Me. So there!"

Figure 7

THE DESCENT OF MAN.

FIGURATIVE PARTY. "So long as *I* am a Man, Sorr, what does it matther to me whether me *Great-Grandfather* was an Anthropoid Ape or not, Sorr!"

LITERAL PARTY. "Haw! wather disagweeable for your *Great-Great-Grandmother*, wasn't it?"

Figure 8

Figure 9

Figure 10

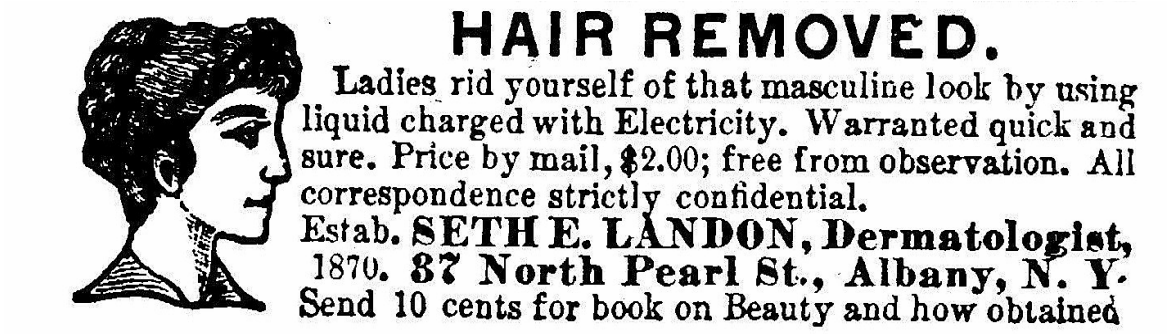
HAIR REMOVED.
Ladies rid yourself of that masculine look by using liquid charged with Electricity. Warranted quick and sure. Price by mail, $2.00; free from observation. All correspondence strictly confidential.
Estab. SETH E. LANDON, Dermatologist,
1870. 87 North Pearl St., Albany, N. Y.
Send 10 cents for book on Beauty and how obtained

Figure 11

HAIR ON THE FACE, NECK, ARMS OR ANY PART OF THE PERSON

QUICKLY DISSOLVED AND REMOVED WITH THE NEW SOLUTION

MODENE

AND THE GROWTH FOREVER DESTROYED WITHOUT THE SLIGHTEST INJURY OR DISCOLORATION OF THE MOST DELICATE SKIN.

Discovered by Accident.—IN COMPOUNDING, an incomplete mixture was accidentally spilled on the back of the hand, and on washing afterward it was discovered that the hair was completely removed. We purchased the new discovery and named it MODENE. It is perfectly pure, free from all injurious substances, and so simple any one can use it. It acts mildly but surely, and you will be surprised and delighted with the results. Apply for a few minutes and the hair disappears as if by magic. It has no resemblance whatever to any other preparation ever used for a like purpose, and no scientific discovery ever attained such wonderful results. **IT CAN NOT FAIL.** If the growth be light, one application will remove it permanently; the heavy growth such as the beard or hair on moles may require two or more applications before all the roots are destroyed, although all hair will be removed at each application, and without slightest injury or unpleasant feeling when applied or ever afterward. MODENE SUPERCEDES ELECTROLYSIS.

Recommended by all who have tested its merits—Used by people of refinement.

Gentlemen who do not appreciate nature's gift of a beard, will find a priceless boon in Modene, which does away with shaving. It dissolves and destroys the life principle of the hair, thereby rendering its future growth an utter impossibility, and is guaranteed to be as harmless as water to the skin. Young persons who find an embarrassing growth of hair coming, should use Modene to destroy its growth. Modene sent by mail, in safety mailing cases, postage paid, (securely sealed from observation) on receipt of price, **$1.00** per bottle. Send money by letter, with your full address written plainly. ☞Correspondence sacredly private. Postage stamps received the same as cash. (ALWAYS MENTION YOUR COUNTY AND THIS PAPER.) Cut this advertisement out.

LOCAL AND GENERAL AGENTS WANTED.

MODENE MANUFACTURING CO., CINCINNATI, O., U. S. A.
Manufacturers of the Highest Grade Hair Preparations.
You can register your letter at any Post-office to insure its safe delivery.

We Offer $1,000 FOR FAILURE OR THE SLIGHTEST INJURY. ☞EVERY BOTTLE GUARANTEED.

Figure 12

Appendix: Historiographical Essay

My work builds on that of Ronald Numbers, Jon H. Roberts, Cynthia Eagle Russett, Carl Degler, Edward Larson, and others who have studied the impact of Darwin on American life and culture and adds to these works by focusing on gender.[1] The scholarship of Numbers, Roberts, and Larson has largely defined this field of study. For the most part, these scholars are concerned with the controversies between religion and science and do not discuss gender as a factor in America's rocky relationship with evolutionary theory. The anthology *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender* (1999), edited by Ronald Numbers and John Stenhouse, contextualizes the American response and highlights the ways varying groups of people responded to the theory. Sally Gregory Kohlstedt and Mark Jorgensen's contribution to this anthology, "'The Irrepressible Woman Question': Women's Responses to

[1] Scholarly work on the American reception of Darwin is legion, and it would be impossible to mention every book here. Among the best books on the topic are, Jon H. Roberts, *Darwinism and the Divine in America: Protestant Intellectuals and Organic Evolution, 1850-1900* (Madison: University of Wisconsin Press, 1988); Ronald L. Numbers and John Stenhouse, ed. *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender* (New York: Cambridge University Press, 1999); Ronald L. Numbers, *Darwinism Comes to America* (Cambridge: Harvard University Press, 1998); Cynthia Eagle Russett, *Darwin in America: The Intellectual Response, 1865-1912* (San Francisco: W.H. Freeman and Company, 1976); Edward J. Larson, *Evolution: The Remarkable History of a Scientific Theory* (New York: Modern Library, 2004); Larson, *Trial and Error: The American Controversy over Creation and Evolution* (New York: Oxford University Press, 1985); Larson, *Summer for the Gods: The Scopes Trial and America's Continuing Debate over Science and Religion* (Cambridge: Harvard University Press, 1997); Edward Caudill, *Darwinism in the Press: The Evolution of an Idea* (Hillsdale: Lawrence Erlbaum Associates, 1989); Caudill, *Darwinian Myths: The Legends and Misuses of a Theory* (Knoxville: University of Tennessee Press, 1997); Carl Degler, *In Search of Human Nature: The Decline and Revival of Darwinism in American Social Thought* (New York: Oxford University Press, 1991); and Richard Hofstadter, *Social Darwinism in American Thought*, with a new introduction by Eric Foner (Boston: Beacon Press, 1992).

Evolutionary Ideology," is an excellent starting point for anyone interested in women's reactions to evolutionary discourse.[2]

My dissertation is directly in conversation with the few works that do explore the gendered ramifications of evolution. Cynthia Eagle Russett's *Sexual Science: The Victorian Construction of Womanhood* (1989) helped to inspire this dissertation. Russett expertly describes the ways in which nineteenth-century medicine and science, including Darwinian evolution, attempted to circumscribe women's activities and define them as inferior to men.[3] This dissertation builds on her study by examining the ways in which women used Darwin to bolster feminist arguments and the larger impact of evolution on ideas about gender and sex. Another pivotal work on the science of gender is Rosalind Rosenberg's *Beyond Separate Spheres: Intellectual Roots of Modern Feminism* (1982).[4] Rosenberg examines how the first generation of female social scientists effectively discredited the biological determinism popularized by evolutionary discourse. My dissertation aims to link these twentieth-century female social scientists more closely to their nineteenth-century predecessors.

Another book that has significantly influenced this dissertation is Gail Bederman's *Manliness and Civilization: A Cultural History of Gender and Race in the*

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[2] Sally Gregory Kohlstedt and Mark R. Jorgensen, " 'The Irrepressible Woman Question': Women's Responses to Evolutionary Ideology," in *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender*, ed. Ronald L. Numbers and John Stenhouse (New York: Cambridge University Press, 1999): 267-293.

[3] Cynthia Eagle Russett, *Sexual Science: The Victorian Construction of Womanhood* (Cambridge: Harvard University Press, 1989).

[4] Rosalind Rosenberg, *Beyond Separate Spheres: Intellectual Roots of Modern Feminism* (New Haven: Yale University Press, 1982).

United States, 1880-1917 (1995).[5] This work explores the ways in which turn-of-the-century Americans enlisted evolutionary understandings of "civilization" (white) and "savage" (dark) to remake manhood. This is a brilliant study of the intersections of racial and gender construction, and Bederman contributes much to our understanding of the feminist (and racist) thought of Charlotte Perkins Gilman, but constructions of femininity are beyond the scope of her project, as is the development of feminist thought on the whole. My work builds on her study of masculinity by exploring the simultaneous reconfigurations of femininity and by placing evolutionary theory more firmly at the center of this vast rethinking of gender.

At the same time, my dissertation more fully incorporates evolutionary discourse into the history of American feminist thought. With a handful of notable exceptions, most histories of the American feminist movement focus on either the organizational history of suffrage associations or, if addressing feminist thought, the influence of religion and/or natural rights.[6] Of all the major studies of American feminist thought,

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[5] Gail Bederman, *Manliness and Civilization: A Cultural History of Gender and Race in the United States, 1880-1917*, Women in Culture and Society Series, ed. Catherine R. Stimpson (Chicago: University of Chicago Press, 1995).

[6] The following are major works on American feminist thought and/or the women's rights movement. Eleanor Flexner, *Century of Struggle: The Woman's Rights Movement in the United States*, revised edition (Cambridge: Belknap Press of Harvard University Press, 1975). This groundbreaking work documents the organizational and structural history of the women's rights movement. The one mention Flexner makes of Darwinism is to point out the influence of Lester Frank Ward, a reform Darwinist, on late nineteenth-century reformers. Ellen Carol DuBois, *Feminism and Suffrage: The Emergence of An Independent Women's Movement in America, 1848-1869* (Ithaca: Cornell University Press, 1978). DuBois chronicles the emergence of women's rights from abolition and temperance. Nancy Cott's *The Grounding of Modern Feminism* (New Haven: Yale University Press, 1987) is primarily about feminist thought after the passage of suffrage and begins with the emergence of the term "feminism" in the 1910's. Another classic study of feminism in America is William O'Neill's *Everyone Was Brave*, revised as *Feminism in America: A History*, second revised edition (New Brunswick: Transaction Publishers, 1989). Ellen Carol DuBois, *Harriot Stanton Blatch and the Winning of Suffrage* (New Haven: Yale University Press, 1997) is an excellent biography of Blatch and a chronicle of the effort to win the vote. See also, Janet Zollinger Giele, *Two Paths to Women's Equality: Temperance, Suffrage, and the Origins of Modern Feminism* (New

only Aileen Kraditor, Rosalind Rosenberg, and Louise Michele Newman touch on the ways in which evolution contributed to its development. In *The Ideas of the Woman Suffrage Movement, 1890-1920* (1971), Kraditor explains women's suffrage ideology as a mix of religious and natural rights. She devotes just two pages to summarizing the biological arguments against women's suffrage and briefly mentions the ways in which women themselves used and helped shape these arguments.[7] Rosenberg's *Beyond Separate Spheres* examines how biological determinism took root in the nineteenth century, but she is mainly concerned with how female social scientists dismantled it in the twentieth.[8] Her article, "In Search of Woman's Nature," however, analyzes nineteenth-century feminists' enthusiasm for Darwin and argues that "biological determinism provided the reassurance they needed as an anchor of certainty in a time of social flux."[9] Both Rosenberg and Kraditor assert that, in light of widespread acceptance of evolution, feminists and anti-feminists began to base their arguments on inherent gender difference and both believe that this turn to "difference" stunted the trajectory of feminist thought.

York: Twayne Publishers, 1995). She sees temperance and suffrage as two arms of the feminist movement – one based on difference, one on equality. Other works focus more on the ideology of suffrage, as opposed to women's rights. These, too, neglect the important role of science in shaping turn of the century feminist thought. See, for example, Suzanne M. Marilley, *Woman Suffrage and the Origins of Liberal Feminism in the United States, 1820-1920* (Cambridge: Harvard University Press, 1996) and Christine Bolt, *The Women's Movements in the United States and Britain from the 1790's to the 1920's* (Amherst: The University of Massachusetts Press, 1993).

[7] Aileen S. Kraditor, *The Ideas of the Woman Suffrage Movement, 1890-1920*, Anchor Books edition, (Garden City: Doubleday, 1971), 15-17, 39.

[8] Rosalind Rosenberg, *Beyond Separate Spheres*, 14-15.

[9] Rosalind Rosenberg, "In Search of Woman's Nature, 1850-1920" *Feminist Studies* 3 (Fall 1975): 141-154. See also, Rosenberg, "The Dissent from Darwin, 1890-1930: The New View of Woman Among American Social Scientists" (Ph.D. diss., Stanford University, 1974).

In *White Women's Rights*, Newman argues that American feminist thought was largely built on the racist ideology of "civilization" made possible by Social Darwinism. Like Bederman, Newman skillfully explores the ways in which race and gender were defined in terms of each other at the turn of the last century, particularly in light of evolutionary notions of "civilization" and progress. She establishes that Social Darwinism justified the racism within the women's rights movement and created a generation of white female "civilizers." While Newman offers the most thorough account to-date of the impact of evolutionary discourse on feminist thought, she does not clearly distinguish between Social Darwinism and evolutionary science. My study differs from hers in its focus on the transition from religious to scientific gender paradigms and on the ramifications of the actual science of evolution. In other words, to the extent that it is possible to differentiate between Americans' interpretations of the two, I am more interested in Darwin and Newman's work centers more on Herbert Spencer.

The other scholars who have analyzed the implications of Darwinian evolution for feminism from a historical (as opposed to theoretical) perspective agree with Kraditor and Rosenberg that evolutionary theory sounded the death knell for the intellectual tradition of feminist thought, grounded in enlightenment principles of natural rights, because it cemented the idea of biological gender differences. Flavia Alaya, for example, argues that the popularity of Darwinism severed feminist thought from its moorings and that, as a result, the movement was interrupted after the publication of John Stuart Mill's *The Subjection of Women* (1869). She contends that nineteenth-century science "not only strengthened the opposition to feminism but disengaged the ideals of feminists

themselves from their philosophical [egalitarian] roots." [10] By stressing gender difference and the importance of sex, this Darwinian discontinuity, she concludes, paved the way not for the feminist revolution but for the Freudian.[11] Similarly, Fiona Erskine contends even though some Victorian women resisted biological determinism, most decided to work within it. Significantly, "[i]t was this endorsement of sexual difference, this complicity in the social construct of Victorian patriarchy that rendered the Victorian women's movement so vulnerable to the attack of the scientific anti-feminists." Instead of resisting essentialism, Erskine found that feminists began to argue for rights as mothers, "thereby yielding the concept of natural rights."[12]

Erskine, Alaya, Kraditor, and Rosenberg assume that enlightenment principles would have ultimately served feminist purposes, when in fact enlightenment humanism was hardly gender neutral. As Thomas Laqueur and others have definitively established, "natural rights" rhetoric not only left out women, but was expressly constructed to exclude them and eviscerate whatever small political and other privileges (wealthy) women may have had. In order for natural rights language to be persuasive, whole bodies of knowledge – science, medicine, philosophy – had to be rewritten to account for gender difference. Prior to the enlightenment, medical textbooks, for example, depicted male and female bodies as mirror images of each other, with the overall message being men and women were more or less the same. But to assuage fears that natural rights

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[10] Flavia Alaya, "Victorian Science and the 'Genius' of Woman," *Journal of the History of Ideas* 38 (1977): 262.

[11] Ibid., 279.

[12] Fiona Erskine, "The *Origin of Species* and the Science of Female Inferiority," in *Charles Darwin's The Origin of Species: New Interdisciplinary Essays*, ed. David Amigoni and Jeff Wallace, Texts in Culture Series (New York: Manchester University Press, 1995), 115, 117.

claims might be advanced by women as well as men, thinkers went to great lengths to depict women as "other" and, thus, not eligible for inherent natural rights.[13]

Of course, early female activists were inspired by claims of natural rights and extrapolated enlightenment principles to include women, but their arguments failed to convince the vast majority of citizens who inherently understood that "all men are created equal" really did mean "all men."[14] So, even though women like Mary Wollstonecraft and Stanton advanced natural rights claims for feminist purposes, this was a thought structure, like the Bible, designed to exclude them. There was no enlightenment golden age for women; rather, the enlightenment's articulation of gender difference set the stage for the scientific obsession with the biology of gender in the final decades of the nineteenth century. Thus, I am suggesting that we reevaluate feminists' turn from natural rights by focusing on the complex interplay between religion, natural rights, and science and ask why, given these options, many women chose to ally themselves with science.

To understand the appeal of evolutionary science to women in the nineteenth century, one has to put it in the religious context that formed the core of the early women's movement. Both Alaya and Erskine present excellent analyses of the ways in which Darwinism and feminism developed in concert; however, both jump straight from the enlightenment to science – bypassing the integral role Christianity played in feminist thought and in the women's rights movement more generally. As a result, their analyses

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[13] Thomas Laqueur, *Making Sex: Body and Gender from the Greeks to Freud* (Cambridge: Harvard University Press, 1990) and Laqueur and Catherine Gallagher, ed., *The Making of the Modern Body: Sexuality and Society in the Nineteenth Century* (Berkeley: University of California Press, 1987).

[14] Mary Wollstonecraft's *The Vindications of the Rights of Woman* (1790) is a classic example of this strain of thought, as is the Declaration of Sentiments from the 1848 Seneca Falls Women's Rights Convention, which follows the Declaration of Independence nearly word for word.

overestimate the importance of natural rights philosophy on the women's rights movement, compared to the much greater influence of the Bible and organized Christianity, the platforms through which most women began to organize and identify as women.[15] Darwinian gender paradigms were not imposed on a blank slate; they clashed, melded with, and, in some cases, replaced biblical ones.

Furthermore, by arguing that the entry of science into discussions of gender in the late nineteenth century marked the demise of the feminist tradition, these scholars assume a narrow view of feminism. Perhaps the challenges facing twentieth-century feminist thought were partially sown by the single-minded focus on suffrage that characterized the woman's rights movement after 1890, when the National Woman Suffrage Association (NWSA) merged with the American Woman Suffrage Association (AWSA). The women who were most influenced by Darwinian evolution rejected the contraction of the women's movement, preferring instead to focus on larger questions about the roots of patriarchy, and were subsequently ostracized from the movement. Perhaps most suffragists' refusal to deal head on with all the gendered implications of the Darwinian revolution was at least equally as detrimental to the women's rights movement as their acceptance of inherent gender differences. Perhaps the problem was not the turn to difference but the failure to fully grapple with these differences and their social and political implications.

[15] This may be because both are mainly writing about feminism in England where the influence of Christianity on feminist thought was not as pronounced as it was in the U.S. Another scholar who advances an argument similar to Alaya's is Evelleen Richards in "Darwin and the Descent of Woman," in *The Wider Domain of Evolutionary Thought*, ed. David Oldroyd and Ian Langham (London: D. Reidel, 1983). Richards is primarily concerned with the Darwinian concept of sexual selection.

Feminist theorists and scientists have been much more likely than historians to study the implications of Darwinism for feminism and gender, but most of these works are concerned with modern issues and, generally, do not situate the science they address in a historical context or analyze the interplay between science and religion. Sarah Blaffer Hrdy, a sociobiologist and anthropologist, was among the first to attempt to reconcile feminism with evolutionary biology. Her groundbreaking study *The Woman that Never Evolved* (1981) acknowledges the reasons that feminists have been skeptical of science but suggests that we may be able to better understand the roots of male dominance by looking at our primate relatives. Hrdy distinguishes between the findings of previous scientists and the potential of evolutionary theory, and its progeny sociobiology, to answer some of life's biggest mysteries. Specifically, her research reveals that within the primate record there is substantial evidence for "questioning stereotypes which depict women as inferior to men – as naturally less assertive, less intelligent, less competitive, or less political than men are."[16]

Historically, however, most feminists have considered Darwinian evolution in particular and western science in general as opposed to women's advancement. In the 1970's and 1980's, there was an outpouring of books on women and science written from this perspective. A leader in this school of thought is Ruth Hubbard, a Harvard biology professor who convened numerous symposia and edited several collections studying the

[16] Sarah Blaffer Hrdy, *The Woman that Never Evolved* (Cambridge: Harvard University Press, 1981), 1.

ramifications of science for gender.[17] Hubbard is also a scathing critic Charles Darwin. According to Hubbard, Victorian notions of gender and sex imbued Darwin's work, which in turn buttressed the prevailing ideologies of the time. Hubbard's work does much to illustrate the ways in which scientists' findings often reflect the biases of their time, but, in many respects, it, too, is the product of a specific era.

Sue Rosser and Charlotte Hogsett's essay "Darwin and Sexism: Victorian Causes, Contemporary Effects" further epitomizes this tradition of feminist skepticism of evolutionary science.[18] Misreading Darwin's writings and overlooking the basic facts of his life, such as his anticlericalism and lifelong commitment to abolition, they argue that Darwin's work should be dismissed because of his racism, sexism, and fear of change.[19] To be sure, Darwin, Spencer, and other evolutionists were no feminists. Their theories tended to essentialize women as incubators and trumpeted men, especially middle- and upper-class white men, as the people responsible for all modern civilization and advancement. Yet, it would be shortsighted to say that all evolutionary theorists were sexists or that evolutionary theory, by definition, opposes the goals of feminism. The situation is much more complex than that. While many of the details remain to be

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[17] See, for example, Ruth Hubbard, Mary Sue Henifin, and Barbara Fried, ed., *Women Look at Biology Looking at Women: A Collection of Feminist Critiques* (Cambridge: Schenkman Publishing Company, 1979); Ruth Hubbard, Mary Sue Henifin, and Barbara Fried, ed., *Biological Woman – the Convenient Myth: A Collection of Feminist Essays and a Comprehensive Bibliography* (Cambridge: Schenkman Publishing Company, 1982); and Marian Lowe and Ruth Hubbard, ed., *Woman's Nature: Rationalizations of Inequality*, The Athene Series (New York: Pergamon Press, 1983). In particular, see Hubbard's essay "Have only Men Evolved?" in both *Women Look at Biology* and *Biological Woman*. There are countless books on feminism, gender, and science; the ones I have mentioned here are among those that deal specifically with Darwinian evolution.

[18] Sue Rosser and Charlotte Hogsett, "Darwin and Sexism: Victorian Causes, Contemporary Effects," in *Feminist Visions: Toward a Transformation of the Liberal Arts Curriculum*, ed. Diane Fowlkes and Charlotte McClure (University: University of Alabama Press, 1984): 42-52.

[19] For biographies of Darwin, see Adrian Desmond and James Moore, *Darwin* (London: Michael Joseph, 1991) and Janet Browne, *Charles Darwin: A Biography* (New York: Knopf, 1995).

worked out, scientists concur that evolution explains the existence of life on earth as well as many facets of the human condition. Thus, it is a theory with which feminists need to learn to work. Furthermore, the salient question is no longer are women "different or equal" to men. The question has become to what extent do men and women differ and what accounts for these differences. As the controversy over former Harvard President Lawrence Summer's 2005 remarks about greater male variability (itself a Darwinian concept) indicates, such questions remain contentious and unsettled.[20]

Today, thanks to scientific advances and the larger role women play in science, a new generation of feminists is cautiously engaging with evolutionary science. Griet Vandermassen's recent book *Who's Afraid of Charles Darwin?: Debating Feminism and Evolutionary Theory* (2005) exemplifies this trend. Vandermassen traces the history of "feminist biophobia" and suggests ways in which feminists can work within an evolutionary framework. She rejects the idea that evolutionary theory is inherently sexist and argues "the only productive way for women to correct male bias in science is not by dismissing the scientific endeavor as 'patriarchal,' but by engaging in it themselves."[21] While she is more concerned with twentieth and twenty-first century developments and does not address religion, Vandermassen's book provides an excellent overview of the troubled relationships between feminist theorists and science, especially evolutionary

[20] Lawrence Summers, "Remarks at NBER Conference on Diversifying the Science and Engineering Workforce," Cambridge, Massachusetts, 14 January 2005.

[21] Griet Vandermassen, *Who's Afraid of Charles Darwin?: Debating Feminism and Evolutionary Theory* (Lanham: Roman and Littlefield Publishers, 2005), 58. See also Vandermassen, "Sexual Selection: A Tale of Male Bias and Feminist Denial," *European Journal of Women's Studies* 11 (2004): 9-26.

biology and psychology, and she argues that feminists should embrace science and attempt to eliminate gender bias from within.

Another feminist theorist who has recently written on feminism and Darwinism is Penelope Deutscher. Deutscher begins with some of the same women that I examine (Antoinette Brown Blackwell, Eliza Burt Gamble, and Charlotte Perkins Gilman) and asks, why did they "take evolutionary theory to be such a positive force for the women's movement?" In short, she finds that women were excited about evolution because it seemed to offer an "intellectual blank slate" and praises them for reclaiming texts that were meant to degrade them; however, she also rightly critiques these women for blindly accepting the racial hierarchies, from savage "low" to civilized "high," depicted in most evolutionary texts. As a theorist, Deutscher primarily analyzes the texts themselves and does not address the larger historical or religious contexts in which Blackwell, Gamble and Gilman wrote.[22]

Two other scholars have recently suggested a tentative feminist alliance with evolutionary science and illuminated ways that evolutionary theory could be potentially liberating for women. In addition to the anthology *Feminism and Evolutionary Biology: Boundaries, Intersections and Frontiers* (1997) which she edited, Patricia Adair Gowaty's article in *Signs*, "Sexual Natures: How Feminism Changed Evolutionary Biology" (Spring 2003), argues that the "basic natures" of males and females of all species have yet to be described in a satisfactory way and encourages "women and men

[22] Penelope Deutscher, "The Descent of Man and the Evolution of Woman," *Hypatia* 19 (Spring 2004): 35.

of feminist consciousness to enter science."[23] Similarly, Lacanian scholar Elizabeth Grosz has recently written two books about the possibility of a relationship between Darwin and feminism.[24] My work is inspired by the revivified feminist interest in evolutionary science and by the complex questions feminist theorists raise, especially about the extent to which biology determines gender. I hope that my dissertation will add a historical perspective to these recent theoretical works by shedding light on an earlier generation of women and men who were also inspired by Darwinian evolution to rethink gender and sex.

[23] Patricia Adair Gowaty, ed., *Feminism and Evolutionary Biology: Boundaries, Intersections, and Frontiers* (New York: Chapman and Hall, 1997). Gowaty, "Sexual Natures: How Feminism Changed Evolutionary Biology," *Signs* 28 (Spring 2003): 901-923. Gowaty is an evolutionary ecologist. For a feminist assessment of recent work in evolutionary psychology in particular, see Anne Fausto-Sterling, Patricia Adair Gowaty, and Marlene Zuk, "Evolutionary Psychology and Darwinian Feminism," *Feminist Studies* 23 (Summer 1997): 402-417.

[24] Elizabeth Grosz, *Time Travels: Feminism, Nature, and Power* (Durham: Duke University Press, 2005) and *The Nick of Time: Politics, Evolution, and the Untimely* (Durham: Duke University Press, 2004). See also, Grosz, "Darwin and Feminism: Preliminary Investigation for a Possible Alliance," *Australian Feminist Studies* (Spring 1999): 31-45.

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